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THESIS

SURFACE WARFARE ATTRITION:
DOES SHIP TYPE MAKE A DIFFERENCE?

by

William James Kear

December 1989

Thesis Co-Advisors: Richard S. Elster
Mark J. Eitelberg

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Surface Warfare Attrition:
Does Ship Type Make a Difference?

by

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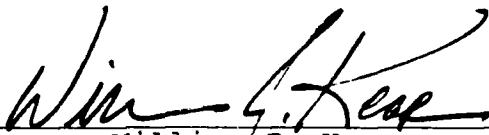
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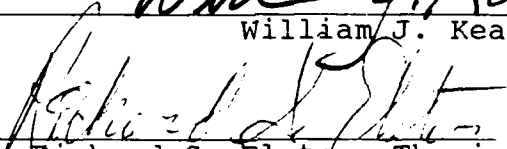
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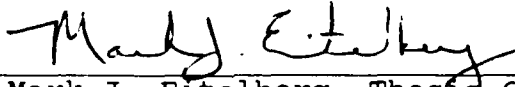
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ABSTRACT

This thesis seeks to determine if there is a relationship between ship type and first-term enlisted attrition in the Surface Warfare Navy. The data used in this thesis were taken from the Department of Defense (DOD) Enlisted Master Record (EMR). Information on male sailors aboard ships with 33 months or less of completed service was extracted from the EMR. Three cohorts were examined--those who joined their first ship in fiscal 1977, 1981, and 1985, respectively. A total of 77,502 personnel serving in 300 ships were analyzed in three data formats: individual ship, ship class, and ship mission category. The results revealed wide variation in attrition rates between individual ships and respective ship classes across different cohorts. In addition, a distinct trend in attrition was observed between ships in different mission categories. For example, oilers generally had the highest rate of attrition across all three cohorts--followed (in order) by amphibious ships, minesweepers, and repair ships with cruisers, destroyers, and frigates having the lowest rate. Further research is recommended to determine the causes for differences in attrition between ship types. Understanding this aspect of enlisted attrition may further aid Navy

manpower planners and leaders in reducing personnel attrition
and its consequences for the Surface Warfare Navy.

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I. INTRODUCTION

A. PROBLEM

Navy manpower requirements are becoming increasingly difficult to meet. The All-Volunteer Force (AVF), given proper funding by Congress, was to solve many problems that had developed under the draft. Enlisted attrition rates were expected to fall from a Vietnam-era peak of 28 percent to a projected 23 percent by 1977 upon completion of the transition to an all-voluntary military. Even more optimistic was the President's Commission on an All-Volunteer Armed Force (or Gates Commission), which forecasted an attrition rate as low as 15 percent under the AVF. At the same time, retention rates were expected to rise along with the number of careerists [Ref. 1:p. 24].

In 1969, the Gates Commission also predicted that the military would have to take a large proportion of low aptitude recruits during the AVF transition and that the services would experience early deficits in manpower end-strengths. Yet, as Cooper notes, the fact that neither of these happened provides "some indication that the problems of transition have been fewer than originally anticipated." [Ref. 2:p. 387] During a conference on the future of the AVF held at Annapolis, Maryland in 1983, Secretary Defense Caspar Weinberger observed that,

...least part of the criticism levelled against our All-Volunteer Force was really just a smoke screen. Behind the smoke screen was a basic unwillingness to pay the price of giving our Armed Forces decent compensation for their contribution to their nation's security. Then there was fear that we could not attract enough educationally qualified people unless we had a draft--that fear has been completely dispelled by the facts. [Ref. 3:p. 2]

While many of the benefits forecasted by original AVF proponents have been realized, attrition remains a perplexing problem and one that has worsened as this decade comes to a close. The question remains: what is the best way for Navy manpower planners, recruiters, and unit commanders to maximize their resources to reverse first-term attrition within the Navy?¹ To make matters worse, the population of young adults will continue to decline through the mid-1990s--acting to intensify competition between the military, employers, and colleges [Ref. 5:p. 13]. With this smaller pool of young adults in the population available for reenlistment, there is even greater interest in seeing that enlistees successfully complete their first term.

In an effort to define and investigate one aspect of the attrition issue, this study seeks to determine if there is a relationship between first-term enlisted attrition and ship type. The results of the research should help to clarify

¹ Elster and Flyer define attrition as "separation or discharge from military service prior to tour completion." [Ref. 4: p. 11] Recruits may sign enlistment contracts of varying length up to six years.

current understanding of personnel attrition in the Navy and provide greater insight for developing appropriate policy.

B. BACKGROUND AND LITERATURE REVIEW

Since the end of the draft, there has been extensive analysis of the attrition issue. Manpower experts have concerned themselves not only with the causes but with the effects on this growing problem on fleet readiness.

A number of factors have been examined and found to be related in some way to attrition. First and foremost, there appears to be general agreement that recruits who are high school diploma graduates (HSDGs) are almost twice as likely to complete their first enlistment than are those who do not graduate from high school [Ref. 7:p. 2]. In addition, as Cooke and Quester observe, there is also a strong relationship between attrition and aptitude test scores:

Aptitude, as measured by the Armed Forces Qualification Test (AFQT) scores and resulting AFQT category classification, is negatively related to early attrition. Recruits with high aptitude generally qualify for the most valuable technical training the Navy offers, which may increase their job satisfaction and reduce attrition propensity. [Ref. 7:p. 2]

However, Elster and Flyer add that the "validity of AFQT in predicting attrition varies for different population subgroups. For example, it is less valid for NON-HSDGs and blacks." Additional demographic factors, such as age, sex, race, and marital status, are likewise related to attrition. [Ref. 4:pp. 66-67]

Several studies have shown that older recruits (over age 20) are more likely to separate before completing their term of enlistment than younger recruits. For instance, Buddin found that "early attrition increases about one percentage point per year for each year beyond age 17 at enlistment." Additionally, he found that prior work experience before enlistment influences attrition, "although the magnitude and significance of the effects vary somewhat." Navy enlisted personnel are four-to-five percent "more likely" to leave during the first six months if they have a period of unemployment the year before they enlist. [Ref. 8:pp. 6-7]

A study by Smith and Kendall found a relationship between attrition and assignment to the Navy's GENDET (General Detail personnel with no formal training outside boot camp) positions. As the authors point out, "GENDETS separated from the Navy early much more frequently than NONGENDET personnel." The differences were significant with over 61 percent of the GENDETS leaving the Navy in 34 months compared with 15 percent of the NONGENDETS. [Ref. 9:p. 77] Quester and Cooke hypothesize that this may be occurring in part because "the GENDET work environment is inherently less satisfying than the environments of those receiving skill training."

The Navy Personnel Research and Development Center (NPRDC), San Diego, CA has done extensive research on the personal and organizational determinants of enlisted attrition. A 1979 NPRDC study found that of an experimental

group of 636 sailors who separated from the Navy early, a majority said their decision to separate was based upon the following grievances (in order of importance):

- family or personal problems.
- general dissatisfaction with Navy life.
- lack of freedom and independence.
- dissatisfaction or lack of interest in the entry job.
[Ref. 10:p. 16]

However, very little research has focused on the possible relationship between first-term enlisted attrition and ship type within the surface Navy. There are a few notable efforts in this direction. For example, Cooke and Quester examined the first-term enlisted attrition of Navy recruits from 1985 through 1988 within Atlantic and Pacific naval air forces (AIRLANT/AIRPAC), surface ship forces (SURFLANT/SURFPAC), and submarine forces (SUBLANT/SUBPAC). The results showed a trend of increasing attrition among both Atlantic and Pacific combatants from 1985 to 1988. SURFLANT combatants discharged an average of 6.15 personnel in 1988, while SURFPAC combatants discharged an average of 5.64 personnel. The number of annual first-term losses among SURFLANT surface combatants increased by 48 percent between 1985 and 1987--compared with an increase of 75 percent in the total fleet over the same period. Although the analysis by Quester and Cooke concludes that attrition is up during the 1985 through 1988 period in both SURFLANT and SURFPAC, no conclusions are drawn regarding any

possible relationship between attrition and specific ship classes. The study used the Center for Naval Analyses (CNA) Enlisted Master Record (EMR) to track file records. A list of all SURFLANT Unit Identification Codes (UICs) was considered. Only surface combatants were considered in SURFPAC. All those who left the Navy with less than 33 months on board ship were included in unit attrition statistics. The authors computed individual unit loss rates by dividing first-term attrition losses for each year by the average number of enlisted personnel on board each unit with less than 33 months on active duty aboard the unit. [Ref. 6:pp. 2-6]

A Master's thesis by C.G. Carlson examined the various factors affecting first-term attrition from Navy ships. A total of 554 ships (divided into 39 classes) was considered. This study included submarines and aircraft carriers. It also included both active and reserve ships. The data were extracted from the Survival Tracking File (STF) by UIC. Carlson attempted to determine the relationship between ship type and attrition; however, the results were inconclusive. To draw distinctions between the ship classes, Carlson examined the average underway time (i.e., time spent at sea) of each ship class. He found that nuclear submarines, while maintaining a high operational tempo (op tempo) with long periods at sea, have relatively low attrition. He recognizes that other factors unique to the nuclear submarine force weigh heavily in keeping submarine attrition low. Aircraft carriers

reflected high relative attrition (11.45 percent), as did destroyer tenders (ADs) with comparatively little underway time (12.4 percent attrition). On the whole, the results suggested that smaller ships appear to have lower attrition rates than larger ships. By analyzing the attrition data by ship class as well as by individual UIC, Carlson also attempted to control for other variables by "looking at ships with similar crew size, engineering plant, age, weapons suite, mission, habitability, and cohort distribution over time." [Ref. 4:p. 43] The Carlson study did not analyze attrition distributions by occupation (or ratings) across ship classes or types. Nor did the study delve deeply into the educational levels of attrition losses from specific ship classes. Carlson's study also revealed attrition peaks and valleys in individual ships. (This is probably explained by reasons external to ship class--such as homeport, commanding officer leadership, command climate, ship performance, or morale.) While the author drew no conclusions across ship class, he did conclude that while "some disparities among ships of the same class exist, the attrition rates are close to each class average." [Ref. 11:pp. 34-46]

Other attrition studies have only scratched the surface of the research question pursued in this analysis. The Smith and Kendall effort, for example, introduced variables to see if attrition were higher for those whose initial duty assignments were at shore commands or at sea in ships. In answering this

fundamental question, the authors observed that "personnel who were assigned to shore stations had the highest attrition rates (over 37 percent vs. 21 percent for ship duty)." As illustrated in Figure 1, Smith and Kendall concluded that "initial assignment to shore-duty stations (as opposed to sea duty) appears to increase the risk of attrition." [Ref. 9: pp. 74-77] Similar studies suggest the same relationship of sea/shore assignment to attrition.

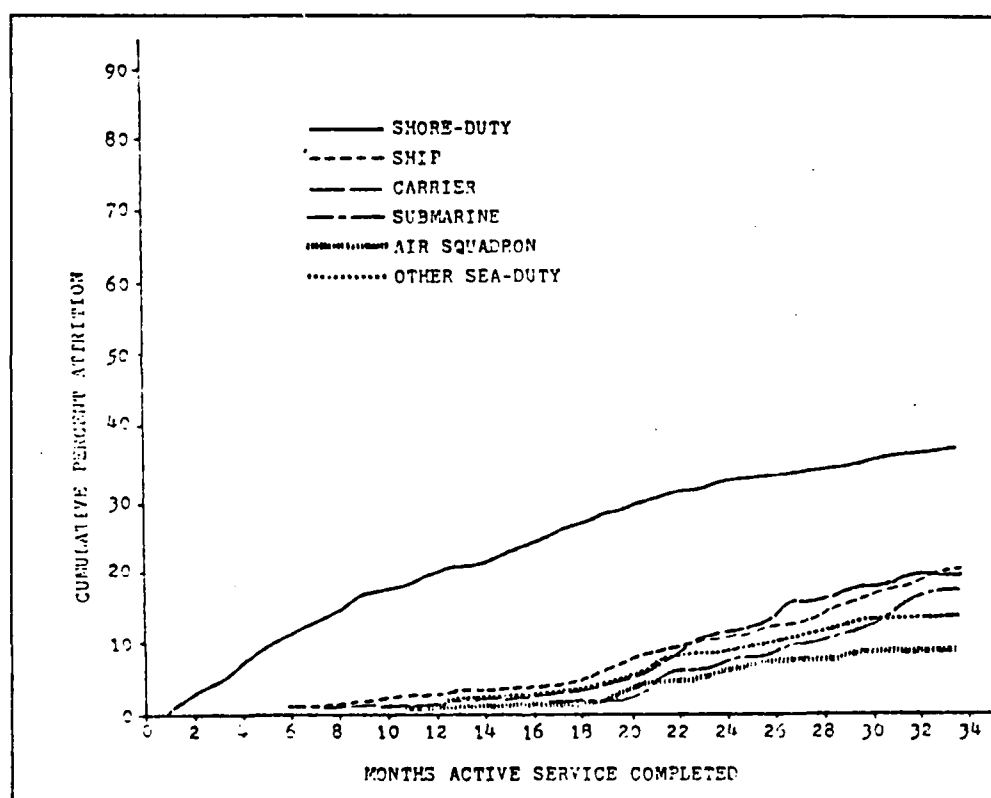


Figure 1. Attrition Over Time by Initial Fleet Duty Assignment [Ref. 9:p. 76]

C. OBJECTIVE

With dwindling dollars for defense and a shrinking population of "baby busters," military leadership must explore all aspects of the manpower issue--not only to recruit but to retain fully qualified personnel. During the last decade, over one-third of first-term Navy enlistees failed to complete their enlistment. This rate of attrition is growing and now approaching a staggering 40 percent. Thus, every avenue must be explored to unravel the causes so that solutions may be found and implemented. Attrition will always exist. It is a reality. But at current levels, the costs and overall effect on readiness are too great. The military, unlike the private sector, is unique in that its ranks are manned initially by teenagers who have little or no previous job experience. The Navy does not recruit mid-level or senior enlisted leaders. It "grows" them from their first enlistment. Therefore, if the Navy misses that narrow window to recruit the necessary talent to maintain a quality force for the future, the opportunity is lost. Of equal importance is to ensure that those who enter the Navy are given every possible opportunity to succeed.

This thesis seeks to determine if there is a relationship between ship type and first-term enlisted attrition in the surface warfare Navy. Drawing upon the DOD Enlisted Master File maintained by the Defense Manpower Data Center (DMDC), data are matched with information on over 300 ships.

Attrition behavior is examined for three cohorts: those who joined their first ship in fiscal 1977, 1981, and 1985, respectively. Individuals are tracked for 33 months from the date of enlistment.

Chapter II outlines the research methodology in detail and summarizes the ship classes considered as well as the key distinctions between them. Chapter III provides data analysis to determine possible trends in ships or ship classes that may lead to a positive relationship between ship type and first-term enlisted attrition. Chapter IV summarizes relevant findings and recommendations in view of the research results.

II. METHODOLOGY

This chapter describes the data sources, population, variables, and the programming technique used in the study. The various constraints and limitations of the data analysis are also discussed. The key distinctions between the 36 ship classes are then outlined to set the stage for Chapter III.

A. PROCEDURE

The data used in this thesis were taken from the Department of Defense (DOD) Enlisted Master Record (EMR), maintained by the Defense Manpower Data Center (DMDC), Monterey, CA. Information on male sailors aboard ships with 33 months or less of completed service was extracted from the EMR and used in the analysis. Three cohorts were examined--enlisted personnel who joined their first ship in fiscal 1977, 1981, and 1985, respectively. Utilizing the same methodology in an earlier study, Cooke and Quester justify their selection of a similar population:

All non-prior service recruits have at least a three-year obligation so that any discharge at or before 33 months of service is a loss of obligated service to the Navy. Separation within three months of contract expiration is at the convenience of the government, permitting individuals to request an early out up to 90 days before their contract expiration. [Ref. 6:p. 2]

Using ten variables from a field of over 100 available in the EMR, data were extracted for tabulation and comparison

across ships, ship classes, and general ship mission categories. Entry variables into the EMR are listed as follows:

- Service Branch.
- Unit Identification Code (or UIC, a ship identifier).
- Sex.
- Educational Level.
- Reason for Loss (Separation Code).
- Date of Separation.
- Occupation Code (or Navy rating).
- Age.
- AFQT.
- Race.

Information provided by OP-122 (Navy Manpower Programs and Support Branch, Washington, D.C.) was used to construct a data file on over 300 ships, incorporating the following five variables:

- Unit Identification Code (UIC).
- Ship Name.
- Hull Number.
- Category/Class.
- Average crew size.

Additional information on ship class was obtained from Jane's Fighting Ships. This included the number of ships in the class as of fiscal 1978, 1982, and 1986; the propulsion system (Nuclear, Gas Turbine, Diesel, Steam); and the general

weapons capability (Guns, Missiles, Torpedos) of the ship. The average age (in years) of each ship class was also calculated using information on each ship's commissioning date in Jane's. The data provided by OP-122 aided in matching UICs with ship names and hull numbers. Utilizing PL/1 (Programming Language 1), DMDC incorporated two software programs to extract and recode information from the EMR, and merge EMR data with the OP-122 data file.

B. VARIABLE EXPLANATION

The UIC represents a key element in this research, since the objective is to determine if a possible relationship exists between ship type (as identified from the EMR by UICs) and first-term enlisted attrition.

Women were not included in this study. By restricting the study to men, an effort was made to compare "apples with apples" across all ship classes. The inclusion of women in this study would inflate first-term attrition figures on the relatively few ships partially manned by them. As Elster and Flyer point out, this is due, in part, because "large numbers of women are separated for pregnancy reasons during their first three years of service." [Ref. 4:p. 19]

The educational level (HSDG vs. NHSDG/GED) of those that separated early from the Navy is also extracted from the EMR to note any possible relationship to ship class. Likewise, a breakdown of reasons for separation and the ratings

(occupation) of those that separated early are tabulated to study any possible correlation with ship type. Also examined across ship types are average Armed Forces Qualification Test (AFQT) scores, average crew member age, and distribution by race (white, black, Hispanic, and other).

This study compares loss rates by ships, ship classes, and ships of similar mission capability (i.e., cruiser/destroyers vs. amphibious ships vs. minesweepers vs. oilers). "Loss rate" is defined as the number of individuals in a particular ship or ship class who separate early from the Navy, divided by the total number that reported aboard with less than 33 months active duty in 1977, 1981, and 1985. Attrition cases are limited to those serving in their initial ship assignment and having less than 34 months on active duty.

Average crew sizes are based upon fiscal 1988 manning levels in naval ships, as provided by OP-122. The final variable considered is average underway steaming time as defined by the average number of days-per-year a ship spends underway at sea. These data were provided by the Center for Naval Analyses and are available for each ship class for one year during each of the three cohort periods being examined. This variable represents a partial measurement of how the operating frequency of a ship or ship class may or may not influence attrition.

With the exception of minesweepers, only active-duty naval ships were considered in this study. This exception was made

to permit a comparative look at the minesweeper force where, unlike other ship classes, the vast majority of minesweepers (18 of 21) are in the Naval Reserve Force (NRF). Unlike larger naval ships in the reserve force that have a reduced manning level of 60-65 percent of active-duty ships within the same class, reserve minesweepers (MSOs) are manned to approximately 70-75 percent of active duty MSOs. In the minesweeper class only, active-duty MSOs (3 of 21) were eliminated from the analysis due to higher manning levels.

C. CONSTRAINTS OR LIMITATIONS

In the documentation of attrition by ratings, a designated "striker" (a GENDET who is working through correspondence courses and on-the-job training to achieve a particular occupation code or rating) may separate before completing his term of enlistment and before his newly-achieved rating code is administratively documented into the EMR. This loss statistic may be counted against total GENDET attrition statistics when it should be included in the occupation or rating statistics of the sailor's newly acquired rating. Consequently, GENDET attrition figures may be somewhat higher, and rating attrition figures (in ratings where designated strikers are permitted) may be somewhat lower than are actually the case. This problem probably does not distort comparisons made here when the attrition rates of ships are examined for the same rating.

As previously observed, average crew sizes by ship class were provided by OP-122 based upon fiscal 1988 manning levels. It should be noted that crew sizes have fluctuated over the years with modifications to weapons and other shipboard systems that require increased or decreased manning. Second, as ships become older, manning may increase because of increased manpower required to maintain aging systems such as a ship's engineering plant. Furthermore, total Navy manpower end strengths will also influence shipboard manning distribution resulting in rating surpluses or shortages in individual rating manning levels.

D. SHIP-TYPE CHARACTERISTICS

Before examining the loss rate data in Chapter III, it is helpful to review the unique mission capabilities and characteristics of the 36 ship classes considered here. This information can aid in identifying possible links that may exist between ship type and first-term enlisted attrition.

In this section, ship classes are examined by broad mission capability and numbers of ships within each class. In highlighting key differences, Table 1 outlines average crew sizes, average yearly underway operating time, type of propulsion system, general weapons capability, and average age of each ship class.

Aircraft carriers and amphibious helicopter carriers were not included in the analysis. Carriers have a rather unique

rating structure with large numbers of aviation-rated personnel. Therefore, comparisons with the majority of other surface ships that have no or relatively small aviation capability would be difficult.

Similar ship classes have similar broad mission requirements, described as follows:

CGN 9, 25, 35, 36, and 38 classes: CGN-Guided missile cruiser (nuclear).

CG 16, 26, and 47 classes: CG-Guided missile cruiser.

Mission: to destroy enemy aircraft, missiles, submarines, and surface ships in order to prohibit the employment of such forces against U.S. forces. Cruisers will normally be assigned to carrier battle groups or surface action groups. [Ref. 12]

DDG 2, 37, and 993 classes: DDG-Guided missile destroyer.

Mission: to provide anti-air, anti-surface, and anti-submarine self-defense and to provide local area protection to carrier battle groups, surface action groups, amphibious groups, underway replenishment groups, and other military shipping against air, surface, and sub-surfaces threats. [Ref. 12]

FFG 1 and 7 classes: FFG-Guided missile frigate.

Mission: to provide anti-air, anti-surface, and anti-submarine self-defense and to provide local area protection to underway replenishment groups, amphibious groups, and other military shipping against sub-surface, air, and surface

threats. The class may also make a limited contribution to carrier battle group or surface action group defense by temporarily supplementing more capable battle group assets. [Ref. 12]

FF 1052 class: FF-Fast frigate.

Mission: to provide anti-air, anti-surface, and anti-submarine self defense and to provide local area protection to underway replenishment groups, amphibious groups, and other military shipping against sub-surface and surface threats. The class can also provide naval gunfire support and make a limited contribution to carrier battle group or surface action group defense by temporarily supplementing more capable battle group assets. [Ref. 12]

LPD 1 and 4 classes: LPD-Amphibious Transport Dock.

Mission: to transport and land troops and their essential equipment and supplies by means of embarked landing craft or amphibious vehicles augmented by helicopter lift. [Ref. 12]

LKA 113 class: LKA-Amphibious cargo ship.

Mission: to transport and land combat equipment and material with attendant personnel in amphibious operations. [Ref. 12]

LSD 32, 36, and 41 classes: LSD-Dock landing ship.

Mission: to transport and launch loaded amphibious craft and vehicles with their crews and embarked personnel in amphibious assault by landing craft and amphibious vehicles.

LSDs will also render limited docking and repair service to small ships and craft. [Ref. 12]

LST 1179 class: LST-Tank landing ship.

Mission: to transport and land amphibious vehicles, tanks, combat vehicles, and equipment in amphibious assault. [Ref. 12]

LCC 19 class: LCC-Amphibious command ship.

Mission: to serve as a command ship for an amphibious task force, landing force, and air control group commanders during amphibious operations. [Ref. 12]

AE 21, 23, and 27 classes: AE-Ammunition ship.

Mission: as elements of the Combat Logistics Force, to support sustained combat operations at sea by naval task groups. By providing logistics support and ammunition to all classes of surface combatants, AEs will make task groups as independent as possible of overseas sources of ammunition supply. [Ref. 12]

AFS 1 class: AFS-Combat store ship.

Mission: as elements of the Combat Logistics Force, to support sustained combat operations at sea by naval task groups. AFSs support warfare tasking by providing repair/spare parts support and refrigerated and non-refrigerated consumables. Additionally, AFSs are capable of simultaneously providing refrigerated stores, general stores, fleet freight, mail and personnel to all classes of surface combatants. [Ref. 12]

AO 98 class: AO-Oiler.

Mission: to operate as units of an Underway Replenishment (UNREP) Group shuttling fuel, freight, and personnel to the fleet at sea. [Ref. 12]

AO 177 class: AO-Oiler.

Mission: to operate as units of an Underway Replenishment (UNREP) Group shuttling fuel, freight, personnel, and ammunition to the fleet at sea. [Ref. 12]

AOE 1 and AOR 1 classes: AOE-Fast Combat support ship. AOR-Replenishment oiler.

Mission: as an element of the Combat Logistics Force, to support sustained combat operations at sea by naval task groups. AOE's and AORs are equipped with modern replenishment transfer equipment and a full aviation capability for vertical replenishment of stores, ammunition, and fuel to all classes of surface combatants. [Ref. 12]

MSO 427 and 509 classes: MSO-Ocean minesweeper.

Mission: to provide mine warfare surface ship and neutralization countermeasures, and to effectively provide protection to surface battle groups, amphibious groups, and other military shipping against mining threats. [Ref. 12]

AD 15, 37, 41 classes and AR 5 class: AD-Destroyer tender. AR-Repair ship.

Mission: as an element of the Combat Logistics Force, to support sustained combat operations at sea by naval task groups. ADs and ARs provide ship repair and logistic support

facilities. Normally operating near the battle group, the AD/AR will moor or anchor in a safe haven to provide battle damage repair and intermediate maintenance to surface combatants. The AD has limited aviation capability, providing personnel and parts support to ships within the embarked flight radius. [Ref. 12]

Table 1 further highlights ship class distinctions by summarizing unique characteristics. 170 ships are cruisers, destroyers, or frigates; 55 are amphibious ships; 36 are oiler or ammunition ships; 18 are minesweepers; and eight are repair ships. As of fiscal 1978, cruiser, destroyer, and frigate class ships had the lowest average age (9.3 yrs), followed by amphibious ships (9.9 yrs), oilers and ammunition ships (14.5 yrs), and repair ships (26.4 yrs). In fiscal 1986, average ship class ages continued to be lowest among cruisers, destroyers, and frigates (14.9 yrs), followed by amphibious ships (17.9 yrs), oilers and ammunition ships (20.8 yrs), repair ships (26.8 yrs), and minesweepers (30.5 yrs). Table 1 also highlights average yearly days underway for one year during each of the three cohort periods. Cruisers, destroyers, and frigates have the highest average operating time at sea, followed by oilers, amphibious ships, minesweepers, and repair ships. Repair ships have the largest average crew size (1059), while minesweepers have the smallest (56). Clearly, cruisers, destroyers, and frigates represent the greatest weapons capability, as required to fulfill their

mission statements. Most other ship classes have only guns, primarily for self-defense in a hostile environment.

TABLE 1

SHIP CLASS CHARACTERISTIC MATRIX

Ship Class	# of ships in class (a)		Avg. age of ship class (b)		Avg. yearly days underway (c)		Avg. crew size(d)	Propulsion System (e)	Weapons Capability (f)				
	FY78	FY82	FY78	FY82	FY78	FY82			Guns	Missiles Torpedos			
CGN 38	3	4	0.4	3.5	7.5	118	132	113	359	Nuclear	Yes	Yes	Yes
CGN 36	2	2	3.2	7.2	11.2	139	127	87	579	Nuclear	Yes	Yes	Yes
CGN 35	1	1	10.3	14.3	18.3	159	185	196	566	Nuclear	Yes	Yes	Yes
CGN 25	1	1	15.0	19.0	23.0	147	98	146	529	Nuclear	Yes	Yes	Yes
CGN 9	1	1	16.0	20.0	24.0	165	(g)	167	736	Nuclear	Yes	Yes	Yes
CG 47	(h)	4	NA	NA	1.0	NA	NA	152	340	Gas Turbine	Yes	Yes	Yes
CG 26	9	9	11.3	15.3	19.3	104	155	130	444	Steam	Yes	Yes	Yes
CG 16	9	9	14.0	18.0	22.0	151	140	115	397	Steam	Yes	Yes	Yes
DDG 993	(h)	4	NA	0.1	4.0	(b)	95	129	318	Gas Turbine	Yes	Yes	Yes
DDG 37	10	10	16.7	20.7	24.7	117	110	124	376	Steam	Yes	Yes	Yes
DDG 2	23	23	15.1	19.1	23.1	120	139	111	339	Steam	Yes	Yes	Yes
DD 963	16	30	0.5	3.8	7.7	98	140	130	310	Gas Turbine	Yes	Yes	Yes
FFG 1	6	6	10.2	14.2	18.2	137	116	87	254	Steam	Yes	Yes	Yes
FF 1052	46	46	6.0	10.0	14.0	138	143	129	270	Steam	Yes	No	Yes
FF1040	10	10	11.0	15.0	19.0	136	128	104	260	Steam	Yes	No	Yes
FFG 7	1	21	0.1	0.6	2.9	114	109	118	195	Gas Turbine	Yes	Yes	Yes
LPD 1/4	13	13	10.0	14.0	18.0	133	139	121	400	Steam	Yes	No	No
LKA 113	5	5	8.1	12.1	16.1	132	85	126	336	Steam	Yes	No	No
LSD 32	8	8	21.7	25.7	29.7	107	130	105	329	Steam	Yes	No	No
LSD 36	5	5	6.4	10.4	14.4	138	130	101	331	Steam	Yes	No	No
LSD 41	(h)	2	NA	NA	0.1	NA	NA	145	322	Diesel	Yes	No	No
LST 1179	20	20	6.6	10.6	14.6	130	136	115	241	Diesel	Yes	No	No
LCC 19	2	2	6.8	10.8	14.8	134	110	133	771	Steam	Yes	No	No

TABLE 1 (CONTINUED)

Ship Class	# of ships in class (a)			Avg. age of ship class (b)		Avg. yearly days underway (c)		Avg. crew size(d)	Propulsion System (e)	Weapons Capability (f)				
	FY78	FY82	FY86	FY78	FY82	FY86	FY78			FY82	Guns	Missiles Torpedo-Ship		
AE 21	2	2	2	20.7	24.7	28.7	86	139	125	347	Steam	Yes	No	No
AE 23	3	3	3	18.1	22.1	26.1	126	90	79	330	Steam	Yes	No	No
AE 27	7	7	7	6.5	10.5	14.5	96	150	110	386	Steam	Yes	No	No
AE 1	7	7	7	8.8	12.8	16.8	107	139	113	441	Steam	Yes	No	No
AO 98	3	3	3	32.0	36.0	40.0	155	101	83	352	Steam	Yes	No	No
AO 177	(h)	3	5	NA	0.3	4.8	105	129	129	208	Steam	Yes	No	No
AOE 1	4	4	4	10.0	14.0	18.0	132	157	151	583	Steam	Yes	No	No
AOR 1	7	7	7	5.7	9.7	13.7	117	149	116	442	Steam	Yes	No	No
MSO 477/														
MSO 509	21	21	21	22.5	26.5	30.5	78	88	85	56	Diesel	No	No	No
AD 15	3	3	3	34.7	38.7	42.7	45	53	76	827	Steam	No	No	No
AD 37	2	2	2	9.8	13.8	17.8	47	41	74	1286	Steam	No	No	No
AD 41	(h)	3	4	NA	1.2	4.2	NA	36	45	1277	Steam	No	No	No
AR 5	2	2	2	34.7	38.7	42.7	34	73	72	847	Steam	No	No	No

(a)(e) Ref: *Jane's Fighting Ships (1987-1988 edition)*(b) Computed from ship commissioning dates (in years) from *Jane's Fighting Ships* for each class. Margin of error +/- .25 years.

(c) Ref: Center for Naval Analyses (Mr. John Vincu)

(d) Ref: OP-122/Manpower Programs and Support Branch (CDR Nicholson)

(f) Ref: *Jane's Fighting Ships*. Guns includes installed 3in/50, 5in/54, 5in/38, and/or Mk 16 Close-In Weapons System (CIWS).

Missiles includes installed anti-air or cruise missile capability

(g) No underway time in FY82 due to extended overhaul period in shipyard facility.

(h) No ships in this class in active service during period of observation.

III. DATA ANALYSIS

This research represents an effort to study the relationship between ship type and first-term attrition by Navy enlistees. Since there is little previous research in the area, this study is exploratory--seeking to break new ground and to clear a path for further research. Nevertheless, the analysis has revealed several consistent trends across cohorts, suggesting possible directions for subsequent research on the causes of and cures for first-term enlisted attrition in the Navy.

A. COHORT ANALYSES

In analyzing the fiscal 1977, 1981, and 1985 cohorts, a total of 77,502 records were examined. These numbers reflect personnel who reported to their initial ship assignment with less than 34 months of active service (27,701 in 1977; 25,739 in 1981; and 24,062 in 1985). Personnel are then tracked to identify those who separate before reaching a total of 33 months of active service while aboard their initially-assigned ship.

As noted in Chapter II, only male attrition is evaluated. The cohort sample was drawn from a total of 227⁴ ships in fiscal 1977, 263 ships in 1981, and 300 ships in 1985. The rise in number of ships between the first and last cohorts

represents the addition of 73 newly-commissioned ships, distributed as follows:

- 65 cruisers/destroyers/frigates.
- 1 amphibious ship.
- 5 oilers.
- 2 repair ships.

Data were tabulated in three formats: by individual ship (as identified by Unit Identification Code (UIC)), by ship class, and by mission category. The first digit of the category/ship class code represents the category of ship by broad mission requirement, as outlined in Chapter II. The first digit of the code signifies one of the following categories (CAT):

- 1--Cruisers (CG/CGN), Destroyers (DDG/DD), or Frigates (FFG/FF).
- 2--Amphibious ships (LPD/LKA/LSD/LST/LCC).
- 3--Oilers (AE/AFS/AO/AOE/AOR).
- 4--Minesweepers (MSO).
- 5--Repair ships (AD/AR).

The second character (a letter) of the code represents a specific ship class within each category. Ships within a common class are constructed to the same general specifications. As an example, the USS NIAGARA FALLS (AFS 3) has a CAT/CLASS code of 3D meaning this ship is an oiler in the Mars-class (see Appendix B).

Before exploring the attrition loss rates within and between each cohort, several demographic variables were examined by ship category. The demographic variables include average age, mean percentile score on the Armed Forces Qualification Test (AFQT), and racial/ethnic group.

1. Age

Table 2 shows the average age of all persons who separated from the Navy by ship category for each of the three cohorts.

The data reveal a consistent trend between cohorts. Within ship categories, cruisers, destroyers, and frigates (CAT 1) and repair ships (CAT 5) have the oldest personnel, on average, of those who separate early in each cohort. Minesweepers (CAT 4) tend to have the youngest personnel among those who separate early from the 1981 and 1985 cohorts.

TABLE 2

AVERAGE AGE OF ALL ENLISTEES AND FIRST-TERM LOSSES
BY SHIP CATEGORY: 1977, 1981, AND 1985 COHORTS*

1977 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	Average Age	
		ALL ENLISTEES	FIRST-TERM LOSSES
1	120	19.8	19.2
2	48	19.7	19.1
3	32	19.7	19.0
4	18	20.1	19.2
5	<u>9</u>	<u>19.8</u>	<u>19.1</u>
TOTAL	227	19.8	19.2

*Age computed at time of loss.

1981 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	Average Age	
		ALL ENLISTEES	FIRST-TERM LOSSES
1	152	20.1	19.5
2	48	19.9	19.4
3	35	19.9	19.4
4	18	20.1	19.2
5	<u>10</u>	<u>20.0</u>	<u>19.6</u>
TOTAL	263	20.0	19.5

TABLE 2 (Continued)

1985 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	<u>Average Age</u>	
		ALL ENLISTEES	FIRST-TERM LOSSES
1	185	20.7	20.1
2	49	20.5	19.8
3	37	20.6	20.1
4	18	20.4	18.4
5	<u>11</u>	<u>20.7</u>	<u>20.1</u>
TOTAL	300	20.6	20.0

Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

2. AFQT

Table 3 shows the AFQT mean percentile scores of all enlistees assigned to ships within each cohort by ship category. As pointed out by Elster and Flyer, "enlistees with higher AFQT scores are less likely to attrite than those with lower scores." [Ref. 4:p. 30] The data in this analysis are consistent with this finding for the 1977 and 1985 cohorts. The reader should note that these data aggregate loss rates across educational levels.

TABLE 3

AVERAGE AFQT PERCENTILE SCORES OF ALL ENLISTEES AND
FIRST-TERM LOSSES BY SHIP CATEGORY: 1977, 1981, 1985 COHORTS

1977 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	<u>Average AFQT Percentile Score</u>	
		ALL ENLISTEES	FIRST-TERM LOSSES
1	120	57.4	53.5
2	48	50.8	49.6
3	32	49.0	49.4
4	18	59.0	52.2
5	<u>9</u>	<u>51.7</u>	<u>48.3</u>
TOTAL	227	54.0	51.2

1981 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	<u>Average AFQT Percentile Score</u>	
		ALL ENLISTEES	FIRST-TERM LOSSES
1	152	56.5	55.5
2	48	51.5	53.1
3	35	49.9	51.9
4	18	56.7	62.3
5	<u>10</u>	<u>50.5</u>	<u>53.3</u>
TOTAL	263	53.9	54.2

TABLE 3 (Continued)

1985 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	<u>Average AFQT Percentile Score</u>	
		ALL ENLISTEES	FIRST-TERM LOSSES
1	185	59.4	55.9
2	49	52.5	51.3
3	37	52.9	53.9
4	18	47.1	43.7
5	<u>11</u>	<u>53.7</u>	<u>52.3</u>
TOTAL	300	56.7	54.2

Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

Across all ship categories and cohorts, personnel in cruisers, destroyers, and frigates (CAT 1) have the highest AFQT mean percentile score, while personnel in oilers have the lowest overall score across the three cohorts. Also worthy of note is that the AFQT mean percentile score of the 1981 cohort losses in minesweepers (CAT 4) was noticeably higher than the cohort average for minesweepers or in the other ship mission categories. The reason for this is unknown; however, the number of minesweeper losses is relatively small (37) compared to that of other ship mission categories. A step toward understanding this observation would be to organize the data by educational level and mental group.

3. Racial/Ethnic Group

Table 4 shows the racial/ethnic distribution of first-term losses by ship category. Appendix A presents the racial/ethnic make-up of each cohort by ship mission category as well as the first-term losses depicted in Table 4.

TABLE 4

PERCENT OF PERSONNEL FAILING TO COMPLETE FIRST-TERM
OF ENLISTMENT BY SHIP CATEGORY AND RACIAL/ETHNIC GROUP:
1977, 1981, AND 1985 COHORTS

1977 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	FIRST-TERM LOSSES (% OF ALL ENLIST.)			
		WHITE	BLACK	HISPANIC	OTHER
1	120	17.0	11.3	17.4	11.2
2	48	23.4	20.1	21.4	14.7
3	32	23.7	17.1	18.3	13.6
4	18	17.4	50.0	38.4	33.3
5	<u>9</u>	<u>19.3</u>	<u>17.1</u>	<u>22.1</u>	<u>10.7</u>
TOTAL	227	19.5	15.1	19.1	12.6

TABLE 4 (Continued)

1981 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	FIRST-TERM LOSSES (% OF ALL ENLIST.)			
		WHITE	BLACK	HISPANIC	OTHER
1	152	18.3	16.0	17.2	13.4
2	48	23.3	17.8	15.3	19.3
3	35	23.8	18.4	13.8	17.2
4	18	18.4	9.1	14.3	0
5	<u>10</u>	<u>17.8</u>	<u>16.2</u>	<u>16.2</u>	<u>7.5</u>
TOTAL	263	20.0	16.8	16.0	12.6

1985 COHORT

SHIP CATEGORY	NO. OF SHIPS IN CATEGORY	FIRST-TERM LOSSES (% OF ALL ENLIST.)			
		WHITE	BLACK	HISPANIC	OTHER
1	185	12.7	12.6	12.4	8.4
2	49	17.7	15.3	12.2	10.4
3	37	19.5	14.1	15.3	6.2
4	18	15.1	17.9	0	33.3
5	<u>11</u>	<u>12.4</u>	<u>13.9</u>	<u>11.6</u>	<u>5.8</u>
TOTAL	300	14.6	13.6	12.7	8.4

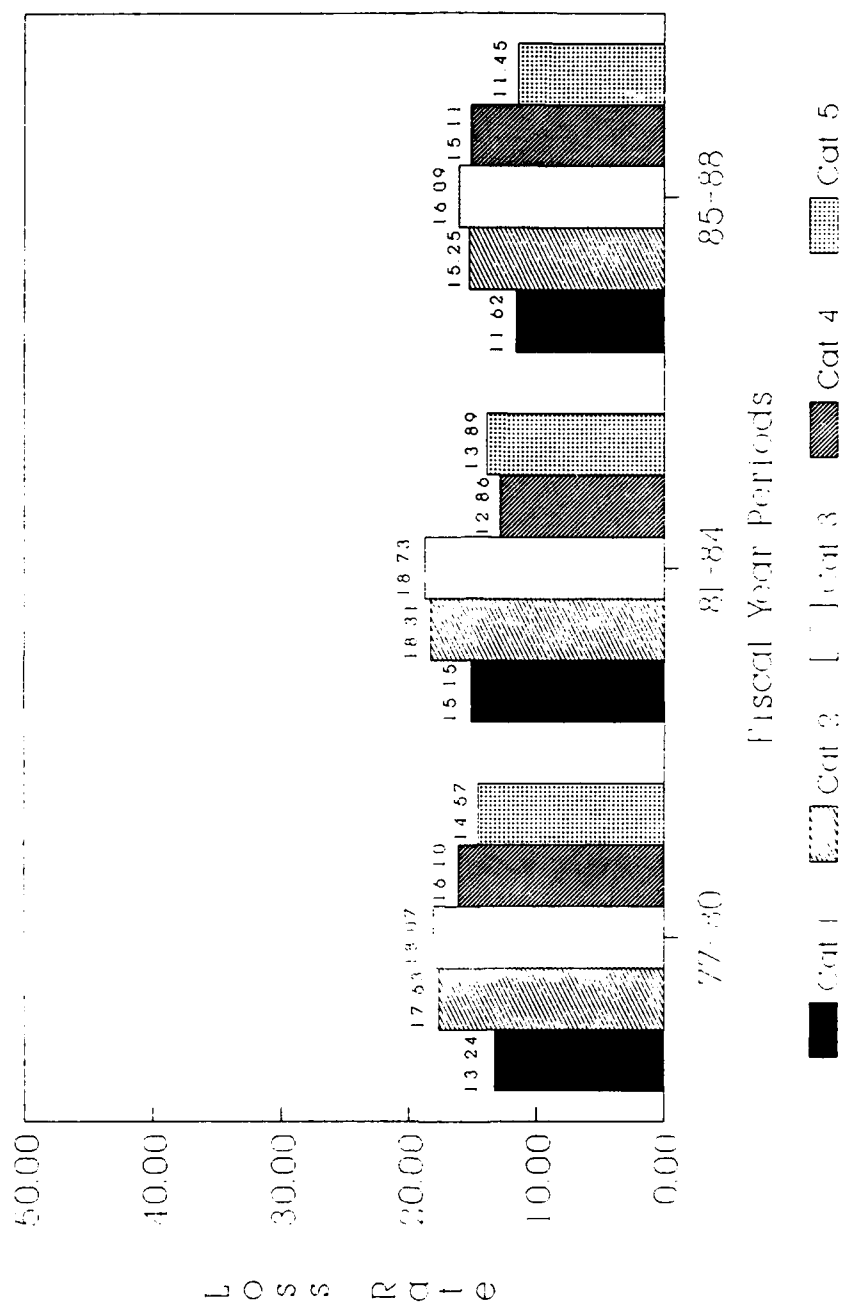
Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

In all cohorts, whites generally experienced the highest attrition levels, followed by Hispanics, blacks, and "others" (primarily persons of Asian or Filipino descent). There were exceptions within each cohort. In the 1977 cohort,

first-term losses of blacks and Hispanics on minesweepers (CAT 4) was relatively high (50.0 percent and 38.4 percent, respectively) compared to whites. This is due to very small sample sizes where one of two blacks and two of five Hispanics separated early. In the 1981 cohort, black and Hispanic losses were relatively low on minesweepers (CAT 4). Again, this is attributed to small sample sizes (see Appendix A). In the 1985 cohort, loss rates for blacks are actually higher than white loss rates on minesweepers and repair ships. It is interesting to note this departure from past observations as it represents a reversal from previous data observations. The reason for this change is unknown.

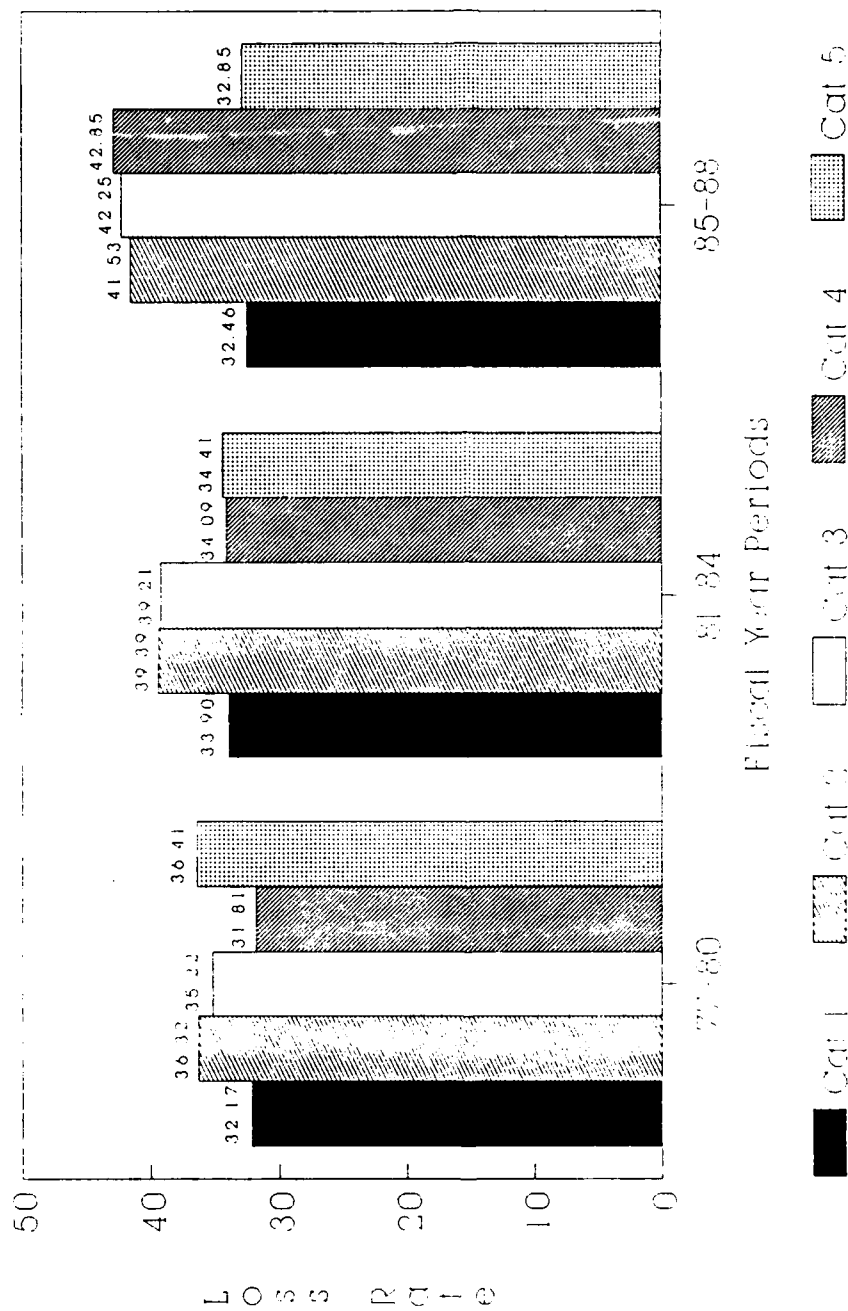
4. Educational Level

Figure 2 illustrates the loss rates of High School Diploma Graduates (HSDGs) by mission category. Figure 3 does the same for Non-High School Diploma Graduates (NHSDGs) or those with General Educational Development (GED) equivalency certificates. Loss rates are calculated as the number of HSDG (or NHSDG/GED) personnel who separate early from the Navy divided by all enlistees assigned to ships who are HSDGs (or NHSDG/GEDs). In Figures 2 and 3, and Table 5, loss rates are expressed as percentages. In examining educational levels, the loss rates of personnel who were high school graduates were consistently lower than the rates of those in the NHSDG/GED category. As shown in Figure 2, cruisers, destroyers, and frigates (CAT 1) have the lowest attrition



Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

Figure 2. Loss Rates (%) of First-Term High School Diploma Graduate (HSDG) Enlistees by Ship Category: 1977, 1981, and 1985 Cohorts



Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

Figure 3. Loss Rates (%) of First-Term Non-High School Diploma Graduate (HSDG) Enlistees by Ship Category: 1977, 1981, and 1985 Cohorts

TABLE 5

EDUCATIONAL LEVEL OF ALL ENLISTEES AND FIRST-TERM
LOSSES WITH LOSS RATES BY SHIP CATEGORY:
1977, 1981, AND 1985 COHORTS

1977 COHORT

SHIP CAT.	HSDG			NGSDG/GED		
	ALL ENL.	FIRST- TERM LOSSES	LOSS RATE	ALL ENL.	FIRST- TERM LOSSES	LOSS RATE
1	11,446	1,516	13.2	2,530	814	32.2
2	4,644	819	17.6	1,346	489	36.3
3	3,740	676	18.1	1,198	422	35.2
4	149	24	16.1	44	14	31.8
5	<u>2,052</u>	<u>299</u>	<u>14.6</u>	<u>552</u>	<u>201</u>	<u>36.4</u>
TOTAL	22,031	3,334	15.1	5,670	1,940	34.2

1981 COHORT

SHIP CAT.	HSDG			NGSDG/GED		
	ALL ENL.	FIRST- TERM LOSSES	LOSS RATE	ALL ENL.	FIRST- TERM LOSSES	LOSS RATE
1	11,805	1,789	15.2	1,979	671	33.9
2	3,974	728	18.1	853	336	39.4
3	3,453	647	18.7	709	278	39.2
4	171	22	12.9	44	15	34.1
5	<u>2,317</u>	<u>322</u>	<u>13.9</u>	<u>433</u>	<u>149</u>	<u>34.4</u>
TOTAL	21,721	3,508	16.2	4,018	1,449	36.1

TABLE 5 (Continued)

1985 COHORT

SHIP CAT.	HSDG			NGSDG/GED		
	ALL ENL.	FIRST- TERM LOSSES	LOSS RATE	ALL ENL.	FIRST- TERM LOSSES	LOSS RATE
1	13,423	1,560	11.6	653	212	32.5
2	4,090	624	15.3	248	103	41.5
3	3,536	569	16.1	239	101	42.3
4	172	26	15.1	7	3	42.9
5	<u>1,624</u>	<u>1,624</u>	<u>11.5</u>	<u>70</u>	<u>23</u>	<u>32.9</u>
TOTAL	22,845	2,965	13.0	1,217	442	36.3

Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

rates of HSDG personnel, followed by repair ships (CAT 5) and minesweepers (CAT 4). Conversely, oilers (CAT 3) have the highest HSDG losses, followed closely by amphibious ships (CAT 2). In Figure 3, cruisers, destroyers, and frigates (CAT 1) have the lowest loss rates for NHSDG/GED personnel, followed by minesweepers (CAT 4) (except in the 1985 cohort). It should be noted that the sample size among minesweepers was very small (three of seven NHSDG/GED personnel in the sample who separated early) relative to the numbers of personnel in other ship categories. Table 5 further compares the first-term loss rates of enlistees who had a traditional high school diploma with those who did not, by ship category for each cohort.

Cruisers, destroyers, and frigates (CAT 1) have the largest numbers of HSDG and NHSDG/GED personnel within each cohort, whereas minesweepers (CAT 4) have the smallest. This is explained by a larger number of ships in Category 1 relative to all other ship categories. Minesweeper crew sizes are also much smaller (about 56 personnel on average), compared with all other ships considered in this study (see Table 1). The next smallest crew size (241 personnel) can be found aboard LSTs (CAT 2), while the largest crews (1,286 personnel) serve on repair ships (ADs-CAT 5).

As discussed in Chapter I, Cooke and Quester found that NHSDG/GEDs have attrition rates that are twice as large as those of HSDGs. The loss rates in the 1977 and 1981 cohorts are consistent with this finding, however, in the 1985 cohort, the NHSDG/GED loss rate (36.3 percent) is almost three-times greater than the HSDG rate (13.0 percent). Even with specific ship mission categories in the 1985 cohort, this approximate three-to-one (NHSDG/GED-to-HSDG) loss ratio is consistent. As one hypothesis, it is possible that due to slightly higher quality enlistees in the 1985 cohort, higher standards in the fleet and elsewhere may have partially influenced an increase in the number of NHSDG/GED losses.

Across cohorts, there was no ship mission category that consistently had the largest NHSDG/GED or HSDG loss rates. However, cruisers, destroyers, and frigates (CAT 1) did have the lowest overall HSDG and NHSDG/GED loss rates

(1977, 1981, and 1985 cohorts combined). This is further investigated in the attrition loss rate analysis later in this chapter.

B. ATTRITION RATE RESULTS

With an understanding of cohort composition by sex, age, AFQT scores, racial/ethnic group, and educational level, data were extracted from the Enlisted Master Record (EMR) by individual ship (as identified by UIC), ship class, and mission category to determine possible trends in attrition between the 1977, 1981, and 1985 cohorts.

1. Individual Ship Analysis

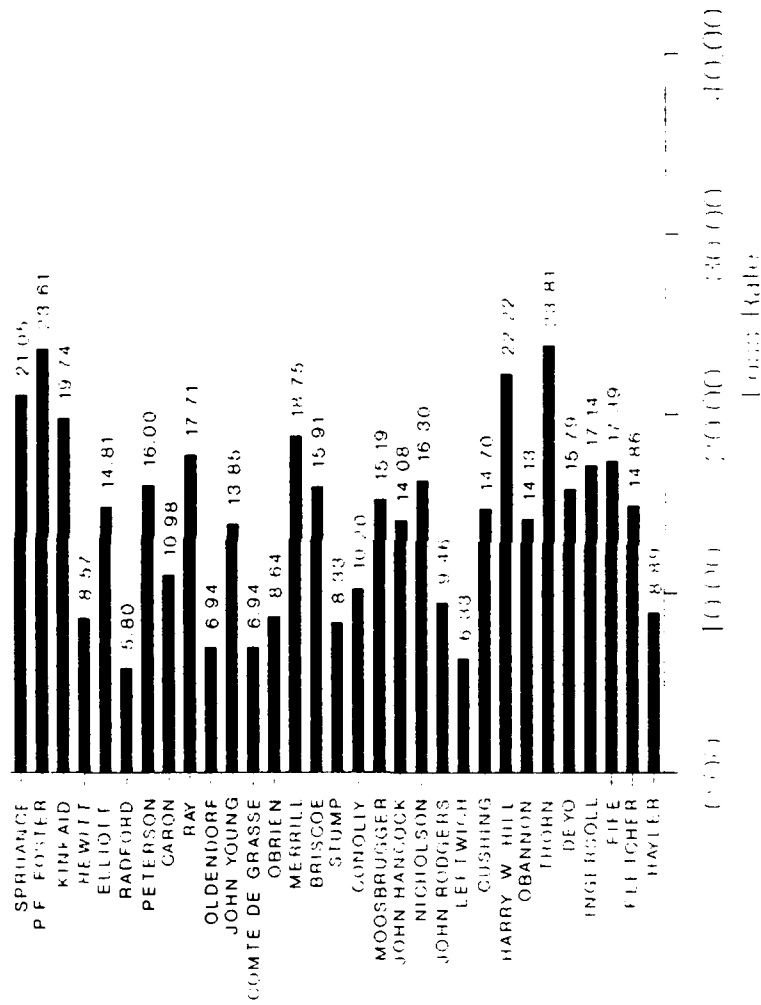
Appendix B shows the number of attrition losses, by UIC, among personnel who reported to their ship in each cohort year with less than 34 months of active service. Personnel were tracked aboard their ship until they reached the 33-month time-in-service window. By running a frequency history on each cohort, it was determined that the average sailor reported aboard his initial ship with between four and ten months time-in-service. Specifically, the greatest number of sailors had between five and seven months active service by the time they reported aboard ship. The frequency history also revealed that there were relatively more persons with less than 12 months of service (69.1 percent) in the 1977 cohort than in the 1985 cohort (64.8 percent). This suggests

that sailors in the 1985 cohort received more training enroute to their first ship than did those in the 1977 cohort.

Further analyzing loss data in Appendix B, it was observed that attrition rates are largest during the first year aboard a ship (i.e., the year following cohort entry). This trend is consistent in the 1977, 1981, and 1985 cohorts. Attrition then tapers off in succeeding years, as sailors become more experienced and accrue more time aboard their ship.

Figure 4 provides an example of differences in loss rates that may occur among individual ships of the same class. In Figure 4, the personnel loss rates from the 1985 cohort for 31 Spruance-class destroyers (1L) are shown. While the Spruance-class average loss rate is 14.1 percent, a high of 23.8 percent (THORN) and a low of 5.8 percent (RADFORD) can be observed. The explanation for this wide variation between individual ships is not clear. The ships within this class are of similar age. They possess the same mission capability. Where they may be different is in operating schedules (although over a 33-month period, the operating days at sea are not expected to be greatly different), command climate, commanding officer leadership, crew/ship performance record, and other possible variables discussed in Chapter I. In observing one ship over two different cohorts, there may also be wide variation. For example, one ship in the Spruance class (1L) had a loss rate of 6.9 percent (THORN) for the 1985

Ship Name



Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

Figure 4. Loss Rates (%) of First-Term Enlistees Among Individual Ships of the Spruance-Class (1L): 1985 Cohort

cohort. That same ship had a loss rate of 19.1 percent for the 1981 cohort (see Appendix B). This difference in loss rate may reflect both differences between the 1981 and 1985 cohorts, and the differences between DD988 (circa 1981) vs. DD988 (circa 1985) with regard to ship schedule, commanding officer, and so on.

2. Ship Class Analysis

The following is a list of ship classes that correlate to the CAT/CLASS code appearing in Table 5 and Appendix C:

- 1A--Virginia class CGN.
- 1B--California class CGN.
- 1C--Truxton class CGN.
- 1D--Bainbridge class CGN.
- 1E--Long Beach class CGN.
- 1F--Ticonderoga class CG.
- 1G--Belknap class CG.
- 1H--Leahy class CG.
- 1I--Kidd class DDG.
- 1J--Farragut class DDG.
- 1K--Adams class DDG.
- 1L--Spruance class DD.
- 1M--Brooke class FFG.
- 1N--Knox class FF.
- 1P--Garcia class FF.
- 1Q--Oliver Hazard Perry class FFG.
- 2A--Raleigh class LPD.

- 2B--Charleston class LKA.
- 2C--Spiegel Grove class LKA.
- 2D--Anchorage class LSD.
- 2E--Whidbey Island class LSD.
- 2F--Newport class LST.
- 2G--Blue Ridge class LCC.
- 3A--Suribachi class AE.
- 3B--Nitro class AE.
- 3C--Butte class AE.
- 3D--Mars class AFS.
- 3E--Caloosahatchee class AO.
- 3F--Cimarron class AO.
- 3G--Sacramento class AOE.
- 3H--Witchita class AOE.
- 4A--Constant class MSO.
- 5A--Prairie class AD.
- 5B--Samuel Gompers class AD.
- 5C--Yellowstone class AD.
- 5D--Vulcan class AR.

Table 6 provides a summary of loss data in the ship-class format.

TABLE 6

NUMBER AND PERCENT OF COHORT LOSSES (ATTRITION)
BY SHIP CLASS: 1977, 1981, AND 1985 COHORTS

1977 COHORT

CAT/ CLASS	NO. SHIPS	<u>Number of Personnel</u>	<u>Personnel Losses</u>	
		CREW WITH LESS THAN 34 MONTHS SERVICE	NUMBER	RATE*
1A	3	382	49	12.8
1B	2	362	66	18.2
1C	1	148	23	15.5
1D	1	202	26	12.9
1E	1	343	44	12.8
1G	8	1,210	191	15.8
1H	9	1,237	191	15.4
1J	0	1,477	241	16.3
1K	3	2,767	510	18.4
1L	8	865	129	14.9
1M	6	584	115	19.7
1N	9	3,542	579	16.3
1P	9	857	166	19.4
2A	13	2,188	476	21.8
2B	5	534	116	21.7
2C	3	337	60	17.8
2D	5	625	153	24.5
2F	0	1,790	421	23.5
2G	2	516	82	15.9
3A	2	240	54	22.5
3B	3	364	104	28.6
3C	7	903	233	25.8
3D	7	1,024	205	20.0
3E	2	271	62	22.9
3G	4	868	180	20.7
3H	7	1,268	260	20.5
4A	8	193	38	19.7
5A	3	903	163	18.1
5B	2	707	144	20.4
5C	1	208	22	10.6
5D	3	786	171	21.8
TOTAL	227	27,701	5,274	19.0

*Rate of personnel losses is the percentage of those with less than 34 months of service who leave the Navy before completing a first-term enlistment

TABLE 6 (Continued)

1981 COHORT

CAT/ CLASS	NO. SHIPS	<u>Number of Personnel</u>	<u>Personnel Losses</u>	
		CREW WITH LESS THAN 34 MONTHS SERVICE	NUMBER	RATE*
1A	4	492	66	13.4
1B	2	280	37	13.2
1C	1	153	18	11.8
1D	1	153	27	17.6
1E	1	194	43	22.2
1G	9	1,117	200	17.9
1H	9	1,101	208	18.9
1I	4	446	39	8.7
1J	10	1,094	218	19.9
1K	23	2,291	416	18.2
1L	30	2,304	411	17.8
1M	6	454	103	22.7
1N	39	2,959	531	17.9
1P	9	606	122	20.1
1Q	4	140	21	15.0
2A	13	1,721	404	23.5
2B	5	318	74	23.3
2C	3	327	72	22.0
2D	5	507	108	21.3
2F	20	1,501	314	20.9
2G	2	454	92	20.3
3A	2	169	43	25.4
3B	3	270	70	25.9
3C	7	740	172	23.2
3D	7	949	178	18.8
3E	2	238	60	25.2
3F	3	230	36	15.7
3G	4	691	174	25.2
3H	7	875	192	21.9
4A	18	215	37	17.2
5A	3	785	177	22.5
5B	2	684	112	16.4
5C	2	637	75	11.8
5D	3	644	107	16.6
TOTAL	263	25,739	4,957	19.3

TABLE 6 (Continued)

1985 COHORT

CAT/ CLASS	NO. SHIPS	<u>Number of Personnel</u>	<u>Personnel Losses</u>	
		CREW WITH LESS THAN 34 MONTHS SERVICE	NUMBER	RATE*
1A	4	515	42	8.2
1B	2	267	28	10.5
1C	1	156	21	13.5
1D	1	158	15	9.5
1E	1	231	29	12.6
1F	3	273	15	5.5
1G	9	945	136	14.4
1H	9	833	90	10.8
1I	4	343	36	10.5
1J	10	926	129	13.9
1K	32	1,842	229	12.4
1L	31	2,419	342	14.1
1M	6	364	48	13.2
1N	39	2,484	305	12.3
1P	9	551	89	16.2
1Q	33	1,769	218	12.3
2A	13	1,356	234	17.3
2B	5	467	72	15.4
2C	3	265	49	18.5
2D	5	437	74	16.9
2E	1	207	22	10.6
2F	20	1,213	238	19.6
2G	2	393	38	9.7
3A	2	203	53	26.1
3B	3	270	47	17.4
3C	7	653	138	21.1
3D	7	812	110	13.5
3E	2	175	33	18.9
3F	5	214	31	14.5
3G	4	639	97	15.2
3H	7	809	161	19.9
4A	18	179	29	16.2
5A	3	371	43	11.6
5B	2	478	57	11.9
5C	3	495	62	12.5
5D	3	350	47	13.4
TOTAL	300	24,062	3,407	14.2

Source: Derived from special tabulations provided by the
Defense Manpower Data Center (DMDC), Monterey, CA.

Across all three cohorts, the Suribachi (3A), Nitro (3B), and Butte (3C) class oilers have the highest attrition rates, while nuclear-powered guided missile cruisers (CGNs) have the lowest rates. There is wide variation in loss rates by cohort year among the 36 ship classes examined. As the age of a ship class increases, attrition rates among later cohorts (1981 and 1985) do not necessarily increase. In fact, in some classes, the rate of attrition actually declines for later cohorts. No clear relationship can be shown regarding operating days at sea. Some ship classes with relatively heavy operating schedules (see Table 1) have low loss rates compared with the cohort average. At the same time, other ship classes with few operating days at sea also have relatively low loss rates compared to the cohort average. The attrition loss rates are similar for repair ships, which have light operating schedules, and some cruiser, destroyer, and frigate classes, which have many more average operating days at sea.

Among the majority of ships across ship classes, there remains no distinct relationship of attrition with operating days at sea. Within and across ship classes, loss rates may be low with a high yearly number of days at sea, and in other cases, loss rates may be high with a high number of days at sea (see Appendix B).

Ship size revealed no clear relationship across ship classes. Repair ships (CAT 5) have the largest average crew

sizes (see Figure 1), yet their loss rates were comparable to or lower than some ship classes in all cohorts. The loss rates for repair some destroyers and frigates, which tend to have comparatively small crew sizes, were higher than repair ships with larger crews.

3. Ship Mission Category Analysis

Ship classes were grouped in the five broad mission categories described earlier in this chapter. This format was chosen to determine general trends among ship classes that may share similar mission requirements as outlined in Chapter II. Table 7 presents the attrition loss rates for each cohort by these five categories.

Across all three cohorts, it can be seen that ships in the cruiser, destroyer, and frigate classes (CAT 1) have the lowest loss rates. Repair ships (CAT 5), which have the largest crew sizes and the fewest operating days at sea, have the second lowest attrition rates compared with all other ship classes examined here. The third lowest rates are found on minesweepers (CAT 4), followed by amphibious ships (CAT 2). Oilers (CAT 3) tend to have the highest personnel loss rates of the five categories. The trends are quite clear. (There may be numerous explanations for these results, some of which are explored in the concluding chapter.) The loss rates are graphically displayed in Figure 5, which provides another view of the differences between ship classes.

TABLE 7

NUMBER AND PERCENT OF FIRST-TERM LOSSES (ATTRITION)
BY MISSION CATEGORY: 1977, 1981, AND 1985 COHORTS

1977 COHORT

First-Term Enlisted Personnel

MISSION CATEGORY	NO. OF SHIPS IN CATEGORY	ALL ENLISTEES	FIRST-TERM LOSSES	LOSS RATE*
1	120	13,976	2,330	16.7
2	48	5,990	1,308	21.8
3	32	4,938	1,098	22.2
4	18	193	38	19.7
5	<u>9</u>	<u>2,260</u>	<u>500</u>	<u>19.2</u>
TOTAL	227	27,701	5,274	19.0

1981 COHORT

First-Term Enlisted Personnel

MISSION CATEGORY	NO. OF SHIPS IN CATEGORY	ALL ENLISTEES	FIRST-TERM LOSSES	LOSS RATE*
1	152	13,784	2,460	17.8
2	48	4,828	1,064	22.0
3	35	4,162	925	22.2
4	18	215	37	17.2
5	<u>10</u>	<u>2,750</u>	<u>471</u>	<u>17.1</u>
TOTAL	263	25,739	4,957	19.3

TABLE 7 (Continued)

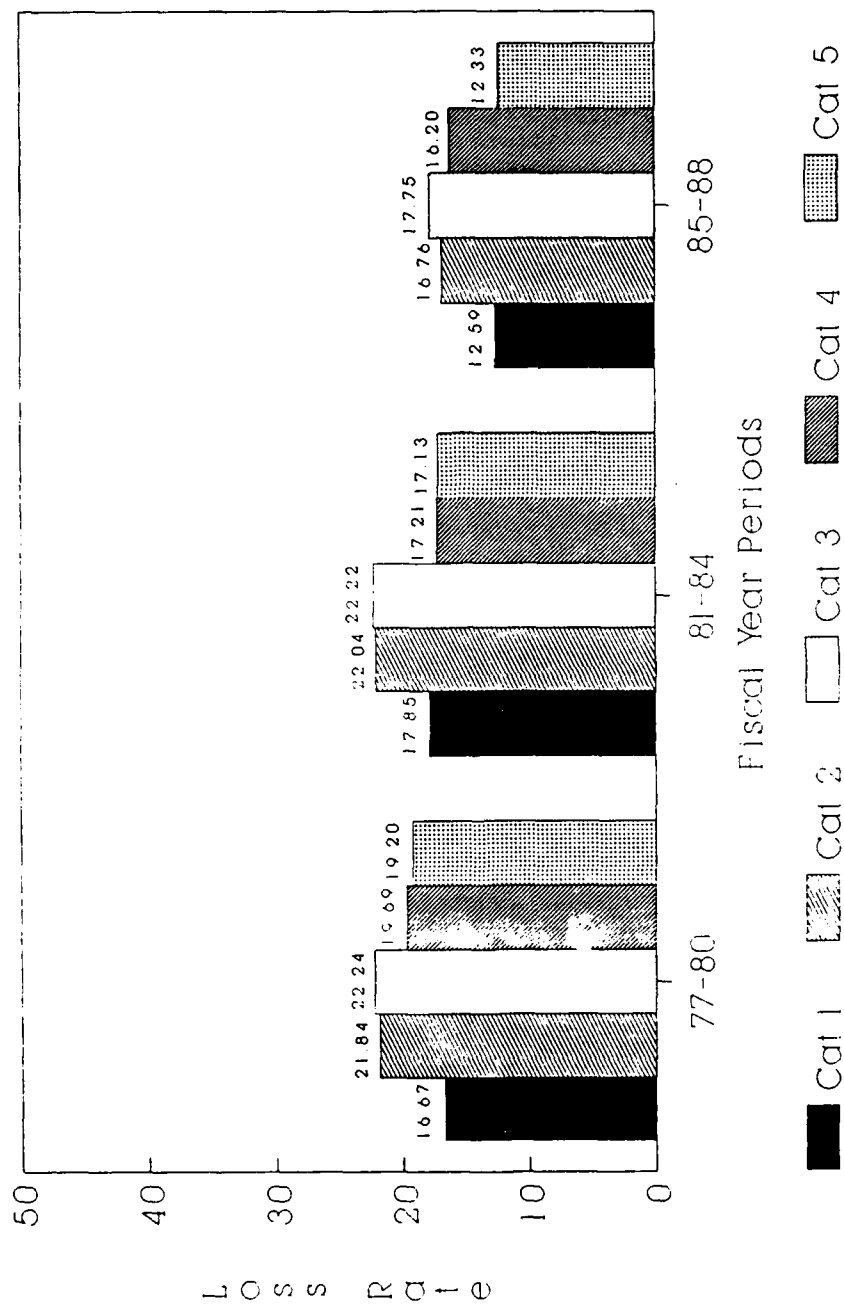
1985 COHORT

MISSION CATEGORY	NO. OF SHIPS IN CATEGORY	<u>First-Term Enlisted Personnel</u>		
		ALL ENLISTEES	FIRST-TERM LOSSES	LOSS RATE*
1	185	14,076	1,772	12.6
2	49	4,338	727	16.8
3	37	3,775	670	17.7
4	18	179	29	16.2
5	<u>11</u>	<u>1,694</u>	<u>209</u>	<u>12.3</u>
TOTAL	300	24,062	3,407	14.2

*Rate of personnel losses is the percentage of those with less than 34 months of service who leave the Navy before completing a first term of enlistment.

Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

The total average personnel loss rate remained relatively constant between the 1977 and 1981 cohorts (19.0 and 19.3 percent, respectively); but it fell to 14.2 percent for the 1985 cohort. It should be noted that a substantial number of persons in the designated cohorts actually enlisted during the prior year. Thus, a large portion of persons in the 1985 cohort (those assigned to ships in 1985) enlisted during fiscal 1984. In 1983 and 1984, the Navy experienced an increase in the quality of its new recruits. This increase in



Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

Figure 5. Loss Rates (%) of First-Term Enlisted Personnel by Ship Category: 1977, 1981, and 1985 Cohorts

quality resulted in a modest reduction in attrition of first-term enlistees during the mid-1980s. [Ref. 7] The lower attrition rate for the 1985 cohort is also affected by a rise in the relative number of persons leaving the Navy during the first few months of service (i.e., before many report to their first ship because they are in the school pipeline). For example, in 1981 male attrition during the first 12 months was 12.1 percent, compared to a rate of 15.1 percent for those in the 1985 cohort. This rise in early attrition, combined with the fact that personnel are apparently reporting aboard ship with more training (i.e., this is inferred from greater time-in-service) in 1985 than 1977 or 1981, may also help to explain why attrition rates were unexpectedly lower for the 1985 cohort of enlistees assigned to ships. Although the 1985 cohort represents an increased number of high quality accessions compared with the 1977 and 1981 cohorts, the drop in attrition represented in this cohort has not been sustained by those who enlisted beyond late 1985. Consequently, this may partially explain why overall attrition rates have continued to rise since that time [Ref. 7].

4. Losses by Rating

From the loss statistics, the ratings (or occupations) of personnel were extracted to examine possible relationships among ship types. Appendix D details cohort losses by rating within ship categories. Table 8 shows the loss rates for Navy ratings that had the highest attrition rates within each ship

TABLE 8

THE TEN NAVY RATINGS WITH THE HIGHEST RATES OF ATTRITION
WITHIN SHIP CATEGORY: 1977, 1981, AND 1985 COHORTS (a)

SHIP CAT.	RANK	<u>1977 Cohort</u>		<u>1981 Cohort</u>		<u>1985 Cohort</u>	
		RATING	LOSS RATE	RATING	LOSS RATE	RATING	LOSS RATE
1	1	FR	34.4	BM	71.9	SR	28.9
	2	SR	28.5	SR	31.6	FR	27.0
	3	FN	25.9	FR	28.2	SM	25.2
	4	BM	23.1	SH	24.3	BM	18.4
	5	FA	22.9	SA	23.7	FN	17.7
	6	SA	22.0	FN	22.5	SH	16.7
	7	YN	20.9	SN	20.6	SA	16.1
	8	SH	19.0	SK	19.6	FC	15.0
	9	SN	18.7	FA	19.6	FA	14.3
	10	BT	17.7	SM	18.1	BT	12.5
2	1	FR	36.3	FN	42.5	SR	31.9
	2	SR	28.7	SR	36.6	SM	29.4
	3	SA	26.9	FR	31.7	FR	24.5
	4	FA	24.5	AR	28.9	SK	23.3
	5	MS	24.4	MS	28.3	MS	21.7
	6	AA	23.4	BT	26.6	QM	20.3
	7	SN	22.1	SA	20.9	HT	19.1
	8	SH	19.6	SN	19.9	FA	18.6
	9	SM	17.4	HT	18.6	YN	18.4
	10	FN	17.4	FA	17.1	SA	18.1

TABLE 8 (Continued)

SHIP CAT.	RANK	<u>1977 Cohort</u>		<u>1981 Cohort</u>		<u>1985 Cohort</u>	
		RATING	LOSS RATE	RATING	LOSS RATE	RATING	LOSS RATE
3	1	FR	34.3	SR	33.8	FR	28.9
	2	FN	31.8	FR	30.2	SR	27.3
	3	FA	28.7	GMG	25.6	FN	26.8
	4	SA	27.9	EN	24.0	SH	21.7
	5	SR	24.6	SA	22.1	SK	18.1
	6	MS	23.9	FN	21.2	MS	19.4
	7	SN	21.7	BT	20.2	SK	18.1
	8	BT	17.2	SM	19.1	SA	17.7
	9	MM	16.5	OS	18.4	SN	15.9
	10	RM	16.2	SN	18.0	HT	14.4
4	1	FR	50.0	SN	45.5	SR	30.8
	2 (c)	HT	44.4	MS	36.4	FA	25.0
	3	SR	40.9	BM	33.3	SA	17.9
	4	FN	33.3	FR	28.6	EM	14.3
	5	FA	28.6	SA	21.7	FN	12.5

TABLE 8 (Continued)

SHIP CAT.	RANK	<u>1977 Cohort</u>		<u>1981 Cohort</u>		<u>1985 Cohort</u>	
		RATING	LOSS RATE	RATING	LOSS RATE	RATING	LOSS RATE
5	1	FA	32.3	SR	34.9	MS	27.3
	2	FR	30.3	FR	27.2	SR	23.6
	3	YN	27.8	SN	23.1	FR	21.7
	4	SA	27.0	YN	20.0	YN	14.3
	5	SR	26.7	SK	17.9	MM	12.3
	6	FN	24.6	BT	17.9	SA	12.4
	7	SN	23.3	FN	16.7	SN	10.8
	8	EN	17.9	EN	13.6	FA	10.3
	9	BT	15.9	MM	13.4	FN	10.0
	10	STG	13.3	HT	12.3	SK	10.0

(a) This is a relative scale and does not take into account the actual size of the cohort within the ratings listed.

(b) Loss rates are relative within each ship mission category among all ratings that experienced losses.

(c) Due to the relatively small crews on minesweepers (an average of 56 per ship), relative to other ship classes, there is a much narrower range of ratings that serve on this class of ship. Therefore, only the five highest ratings that experienced the highest loss rates were listed.

Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, Ca.

mission category. The abbreviations for the Navy ratings listed in Table 8 are explained below:

- AR--Airman Recruit.
- BM--Boatswain's Mate.
- BT--Boiler Technician.
- EM--Electrician's Mate.
- EN--Engineman.
- FA--Fireman Apprentice.
- FC--Fire Controlman.
- FN--Fireman.
- FR--Fireman recruit.
- GMG--Gunner's Mate (Guns).
- HT--Hull Technician.
- OS--Operations Specialist.
- QM--Quartermaster.
- RM--Radioman.
- SA--Seaman Apprentice.
- SH--Ship's Serviceman.
- SK--Storekeeper.
- SM--Signalman.
- SN--Seaman.
- SR--Seaman Recruit.
- STG--Sonar Technician.
- YN--Yeoman.

As seen in Table 8, within the same mission category, there are distinct trends across cohorts. Within cruisers, destroyers, and frigates (CAT 1), for example, the highest losses are consistently among SR, SA, SN, BM, FR, FA, and FN

personnel. In amphibious ships (CAT 2) and oilers (CAT 3), the MS rating also experiences high losses. Within minesweepers (CAT 4), the greatest losses are in line with CAT 1, 2, and 3 ships. Unlike the other mission category ships, YNs also experience high loss rates in repair ships (CAT 5). These findings are consistent with previous studies showing that persons in General Detail (GENDET) ratings (SR, SA, SN, FR, FA, FN, AR, AA, AN) generally have higher attrition than do personnel who have completed additional formal skill training after boot camp. [Ref. 9:p. 77] As Quester and Cooke state:

Although there are competing hypotheses, the usual interpretation of higher attrition rates for GENDETs is that the GENDET work environment is inherently less satisfying than the environments of those receiving skill training. [Ref. 13:p. 11]

High rates of attrition in other ratings (as shown in Table 8) may be partially explained by the workload or work environment (especially in the engineering ratings, such as EN,BT,HT,MM, and EM) unique to a particular ship or ship class. It is difficult to interpret loss rates in specific Navy ratings since many other factors such as command climate, organizational culture, and supervisory leadership may also affect these rates. However technical ratings tend to have fair selective aptitude and education standards, screening out new recruits who are more likely to experience attrition or fail training. GENDETs, on the other hand, are among the least selective occupations in the Navy, attracting new

recruits who have generally lower aptitude test scores and levels of education. Previous research has shown that education (completion of high school) and aptitude are strongly linked with attrition, providing further explanation for the higher loss rates among those in non-technical or GENDET ratings.

5. Reason for Loss

The reason for each loss was tabulated to note similarities or differences between ship types. Table 9 categorizes these data for each cohort by mission category. Percent losses are grouped under five general discharge categories:

- Medical (includes disability or unqualified for active duty).
- Hardship or dependency.
- Death (battle or non-battle casualty).
- Performance (failure to meet performance criteria, such as drugs, court martial, desertion, homosexuality, behavioral disorders, misconduct, unsuitability, or civil conviction).
- Other (such as breach of contract, pregnancy, sole surviving son, or erroneous enlistment).

Table 9 shows that performance deficiencies account for between eight or nine out of every ten personnel losses within each cohort, followed by medical, and then "other." (Performance-related discharges increased in all categories except CAT 1 for the 1981 cohort.) In 1983 Navy and Marine Corps policy changes resulted in modifications to coding

TABLE 9

ATTRITION RATES, BY REASON, WITHIN SHIP MISSION CATEGORY:
1977, 1981, AND 1985 COHORTS

SHIP CATEGORY	Reason	Attrition Rate (Percent)		
		1977	1981	1985
1	Medical	8.3	3.7	4.5
	Hardship or dependency	1.5	0.7	1.8
	Death	2.2	1.5	1.1
	Performance	82.6	90.8	92.0
	Other	5.4	3.3	.6
2	Medical	6.3	1.8	5.8
	Hardship or dependency	1.0	0.8	1.0
	Death	1.8	1.6	1.1
	Performance	88.9	92.0	91.1
	Other	2.6	3.9	1.0
3	Medical	6.4	1.5	4.5
	Hardship or dependency	1.2	0.6	1.2
	Death	1.3	1.0	1.0
	Performance	85.7	93.6	92.5
	Other	5.4	3.1	.8

TABLE 9 (Continued)

SHIP CATEGORY	Reason	Attrition Rate (Percent)		
		1977	1981	1985
4	Medical	5.3	0	6.9
	Hardship or dependency	0	0	3.4
	Death	2.6	0	0
	Performance	86.8	91.9	89.7
	Other	5.3	8.1	0
5	Medical	6.8	2.9	5.3
	Hardship or dependency	1.0	0	.5
	Death	1.2	1.3	.5
	Performance	86.2	94.1	92.8
	Other	4.8	1.7	.9

Source: Derived from special tabulations provided by the Defense Manpower Data Center (DMDC), Monterey, CA.

losses. This policy change may explain the apparent difference in performance-related discharges between the 1981 and 1985 cohorts for CAT 2, 3, 4, and 5 ships. CAT 1 ships, however, still experienced a slight increase in performance-related discharges between the 1981 and 1985 cohorts. Likewise, there was also a policy change in loss coding between the 1977 and 1981 cohorts that resulted in a decrease in medical discharges in all ship mission categories.

(Appendix E provides a specific breakdown of Navy personnel who separate early in each cohort by mission category.)

In Chapter IV, conclusions are made based upon a summary of the data analysis. Additionally, recommendations for future research are offered, stemming from new questions raised in this study as a result of the research findings.

IV. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

This thesis has attempted to determine if there is a relationship between first-term enlisted attrition and ship type, using the Defense Manpower Data Center (DMDC) Enlisted Master Record (EMR). The results of longitudinal analysis suggest that a relationship exists.

Each of three cohorts (including over 77,000 enlisted personnel) was examined with respect to average age, mean percentile score on the Armed Forces Qualification Test (AFQT), racial/ethnic background, and educational level. This was done to better understand the demographic composition of the cohorts and to provide possible explanations for the early separation of enlistees within each cohort. The distributions of personnel losses by demographic variables are generally consistent with the findings of previous studies. For example, results by aptitude followed the findings of previous studies, where it has been observed that those who separate early generally have lower AFQT scores than do their counterparts who complete a first term of enlistment. A comparison of loss rates by racial/ethnic group revealed higher attrition among whites than among other groups. The loss rates for Hispanics were higher than those for blacks; and the rates for blacks were higher than those for "other"

groups. This finding is also supported by previous research. Studies conducted over the past 30 years have repeatedly shown that possession of a high school diploma is strongly linked with adaptability to military life and successful completion of a first term of enlistment. Those who separated early and did not possess a high school diploma outnumbered (in terms of percent lost) high school graduates by greater than two-to-one in the 1977 and 1981 cohorts; and this ratio was three-to-one in the 1985 cohort, with no clear explanation for the increase.

By arranging the cohort data in three formats--individual ship, ship class, and broad mission category--trends and common relationships could be observed. As revealed in Chapter III, individual ships showed wide variation in cohort loss rates, which may suggest the influence of other factors such as command climate, commanding officer/executive officer leadership, crew/ship performance, operating schedule, and so on. Similarly, no clear trends could be observed within the separate ship classes. For example, age of the ship class, crew size, weapons capability, and operating days at sea appeared to vary in relationship to attrition within different classes of ships. On the other hand, evidence of a relationship between attrition and ship type was found when the data were analyzed using the third format. Here, ship classes were grouped into one of five broad mission categories--cruisers, destroyers, and frigates (CAT 1),

amphibious ships (CAT 2), oilers (CAT 3), minesweepers (CAT 4), and repair ships (CAT 5). Cruisers, destroyers, and frigates (CAT 1) had the lowest loss rates overall (all three cohorts combined). Repair ships (CAT 5) and minesweepers (CAT 4) had similarly low loss rates. The highest loss rates were found for oilers (CAT 3) and amphibious ships (CAT 2).

There are several possible hypotheses that may explain the observed trends in attrition by mission category. Cruisers, destroyers, and frigates (CAT 1) have long been regarded by many Surface warfare sailors as the "most glamorous" ships in the fleet. This image has included perceptions, true or false, that warships provide sailors with greater challenge, prestige, opportunities for warfare skill development, and "importance." Thus, among many Surface Warfare officers and enlisted sailors alike, cruisers, destroyers, and frigates are frequently the most sought-after ships for duty assignment. This introduces the opinion of some in the Surface Warfare Navy that, in general, more qualified leaders (in commanding officer and executive officer positions) are being assigned to these ships than to others. This may partially explain the difference in attrition between ship types, assuming that attrition is influenced to some extent by the greater abilities or higher achievements of senior personnel (officer and enlisted) on the ship. While this may offer a possible explanation for differences in cruisers, destroyers, and frigates, it may not be as valid for minesweepers and repair

ships. Across ship types, the presence and relative influence of other variables may explain observed differences in loss rates.

As observed in Chapter III, cruisers, destroyers, and frigates generally receive a slightly higher caliber sailor, based upon AFQT mean percentile scores and educational level. This occurs because more technically qualified enlisted personnel are required on these ships. Since education and aptitude are linked with success in naval service, this distribution of enlisted talent may also provide a partial explanation for lower attrition rates on such ships.

As previously noted, a combination of factors may influence attrition including crew/ship performance, number of operating days at sea, and command climate. These variables should be explored to more fully determine which may serve to increase or decrease attrition across varying ship types. Multivariate analysis techniques should be applied in attempts to model attrition as a function of personnel, ship, deployment and other data.

B. RECOMMENDATIONS

This research suggests that there is a relationship between ship type and first-term enlisted attrition. These results raise several questions:

- Given the loss rates among ships within differing mission categories, is the difference large enough to warrant enlisted and officer manning policy changes in an attempt

to distribute more evenly personnel talent, given the unique requirements of each ship class?

- Given the technology of differing ships, is such a distribution of talent feasible?
- If the loss rate differences between ship types are determined to be significant enough to consider making policy changes, what negative and/or positive effects would these changes cause in the mission readiness of each ship class?
- What other variables unique to different ships, such as deployment cycle and operating days at sea, might be related to attrition differences between ships with different mission requirements?

There are several possibilities for future research that may help to determine the cause for differences in attrition among ship types. For example, one area of research could examine more directly the distribution of enlisted talent across ships in the fleet, given varying levels of complexity in ships with differing requirements for technically-skilled personnel. Additionally, a survey might be useful to examine whether there is a perception among surface warriors that duty on cruisers, destroyers, and frigates enhances a naval career more than on other ship classes. If so, are officer manning policies and the personnel detailing process influenced by this to the detriment of other ship classes? Finally, manpower planners and researchers should determine if attrition differences exert a disproportionate influence, negative or positive, on the readiness of different ship types.

Navy manpower experts agree that attrition is currently at unacceptably high levels. Navy records show that just three out of every five new recruits can be expected to complete a first term of enlistment. Although attrition will always exist, present levels are too high, with the cost in dollars reaching into the hundreds of millions, and the cost in readiness exacting an immeasurable toll. There is not just one cause of early separation, but many. With continued focus on this important issue, Navy manpower planners and leaders may more effectively reduce its impact on the readiness of the Surface Navy.

APPENDIX A
LOSS RATES BY RACIAL/ETHNIC GROUP

LOSS RATES BY RACE AND CATEGORY

CLASS	MIPS	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
		LOSSES	SERVICE	LOSS RATE	LOSSES	SERVICE	LOSS RATE	LOSSES	SERVICE	LOSS RATE	LOSSES	SERVICE	LOSS RATE	LOSSES	SERVICE	LOSS RATE
1201	1	1,000	1,000	17.032	1	1,000	17.032	1	1,000	17.032	1	1,000	17.032	1	1,000	17.032
1202	1	1,000	1,000	22.733	1	1,000	22.733	1	1,000	22.733	1	1,000	22.733	1	1,000	22.733
1203	1	1,000	1,000	22.733	1	1,000	22.733	1	1,000	22.733	1	1,000	22.733	1	1,000	22.733
1204	1	1,000	1,000	17.032	1	1,000	17.032	1	1,000	17.032	1	1,000	17.032	1	1,000	17.032
1205	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1206	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1207	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1208	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1209	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1210	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1211	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1212	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1213	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1214	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1215	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1216	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1217	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1218	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1219	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1220	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1221	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1222	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1223	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1224	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1225	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1226	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
1227	1	1,000	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353	1	1,000	19.353
TOTALS	227	4,360	2,349	19.353	157	1,034	15.125	623	3,256	19.133	134	1,058	12.605	5,274	27,701	19.039

LOSS RATES BY RACE AND CATEGORY
FY81-84

CLASS	SHIP	WHITE			BLACK			HISPANIC			OTHER			TOTAL			
		LOSSES	RATE	<34 MOS SERVICE	LOSSES	RATE	<34 MOS SERVICE	LOSSES	RATE	<34 MOS SERVICE	LOSSES	RATE	<34 MOS SERVICE	LOSSES	RATE	<34 MOS SERVICE	
1	1	2,038	18.31	1,930	15.93	1,930	15.93	1,930	15.93	1,930	15.93	1,930	15.93	1,930	15.93	1,930	15.93
2	2	747	23.28	603	18.44	108	13.82	113	17.01	113	17.01	113	17.01	113	17.01	113	17.01
3	3	344	17.57	346	16.19	90	16.10	93	16.03	93	16.03	93	16.03	93	16.03	93	16.03
4	4	384	20.02	370	16.79	92	16.03	92	16.03	92	16.03	92	16.03	92	16.03	92	16.03
TOTALS	263	4,070	20.33	3,703	16.79	929	16.03	929	16.03	929	16.03	929	16.03	929	16.03	929	16.03

LOSS RATES BY RACE AND CATEGORY

CLASS	SHIPS	WHITE		BLACK		HISPANIC		OTHER MOS		TOTAL	
		LOSSES	LOSS RATE	LOSSES	LOSS RATE	LOSSES	LOSS RATE	LOSSES	LOSS RATE	LOSSES	LOSS RATE
TOTALS	1	1,429	17.721	1,756	12.644	227	12.172	333	8.435	1,727	12.588
	2	534	19.503	694	15.121	182	12.102	101	10.211	4,338	12.768
	3	19	15.029	29	17.038	5	10.000	9	53.333	3,775	12.768
	4	164	12.424	33	13.038	0	0.000	0	0.000	1,179	12.768
	5	2,713	14.575	494	13.635	136	11.554	758	8.443	2,007	12.337
TOTALS		2,713	14.575	494	13.635	136	11.554	758	8.443	2,007	12.337

APPENDIX B

LOSS RATES BY INDIVIDUAL SHIP

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY77	FY78	FY79	FY80	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
27024	MISSISSIPPI	CGN40	1A		4	5	2	8	339	84.00	9.33
27081	VIRGINIA	CGN38	1A	3	4	3		10	339	101.00	9.33
27082	TEXAS	CGN39	1A	8	16	3	1	31	539	191.00	9.33
27083	CALIFORNIA	CGN36	1B	9	21	14		44	539	196.00	9.33
27084	SOUTH CAROLINA	CGN37	1B	9	21	14		44	539	196.00	9.33
27085	TENNESSEE	CGN35	1C	2	15	0		17	539	196.00	9.33
27086	BRITAIN	CGN35	1C	2	15	0		17	539	196.00	9.33
27087	LONG BEACH	CGN35	1E	6	25	13		44	539	196.00	9.33
27088	J. DANIELS	CGN35	1E	6	25	13		44	539	196.00	9.33
27089	WALNUT	CGN35	1G	6	25	13		44	539	196.00	9.33
27090	JOULETT	CGN35	1G	6	25	13		44	539	196.00	9.33
27091	MOHAWK	CGN35	1G	6	25	13		44	539	196.00	9.33
27092	STANDLEY	CGN35	1G	6	25	13		44	539	196.00	9.33
27093	FOX	CGN35	1G	6	25	13		44	539	196.00	9.33
27094	BIDDLE	CGN35	1G	6	25	13		44	539	196.00	9.33
27095	LEAH	CGN35	1H	6	25	13		44	539	196.00	9.33
27096	YARNELL	CGN35	1H	6	25	13		44	539	196.00	9.33
27097	WOLF	CGN35	1H	6	25	13		44	539	196.00	9.33
27098	DALE	CGN35	1H	6	25	13		44	539	196.00	9.33
27099	TURNER	CGN35	1H	6	25	13		44	539	196.00	9.33
27100	ENGLE	CGN35	1H	6	25	13		44	539	196.00	9.33
27101	HALF	CGN35	1H	6	25	13		44	539	196.00	9.33
27102	REFUG	CGN35	1H	6	25	13		44	539	196.00	9.33
27103	LUCE	CGN35	1H	6	25	13		44	539	196.00	9.33
27104	MACDONOUGH	CGN35	1H	6	25	13		44	539	196.00	9.33
27105	COONTZ	CGN35	1H	6	25	13		44	539	196.00	9.33
27106	KING	CGN35	1H	6	25	13		44	539	196.00	9.33
27107	MAN	CGN35	1H	6	25	13		44	539	196.00	9.33
27108	WV. PRATT	CGN35	1H	6	25	13		44	539	196.00	9.33
27109	DEWEY	CGN35	1H	6	25	13		44	539	196.00	9.33
27110	PREBLE	CGN35	1H	6	25	13		44	539	196.00	9.33
27111	ADAMS	CGN35	1H	6	25	13		44	539	196.00	9.33
27112	JOHN KING	CGN35	1H	6	25	13		44	539	196.00	9.33
27113	LAWRENCE	CGN35	1H	6	25	13		44	539	196.00	9.33
27114	C. RICKETS	CGN35	1H	6	25	13		44	539	196.00	9.33
27115	ARMY	CGN35	1H	6	25	13		44	539	196.00	9.33
27116	H. R. WILSON	CGN35	1H	6	25	13		44	539	196.00	9.33
27117	MCCORMICK	CGN35	1H	6	25	13		44	539	196.00	9.33
27118	TOMERSON	CGN35	1H	6	25	13		44	539	196.00	9.33
27119	SULLERS	CGN35	1H	6	25	13		44	539	196.00	9.33
27120	ROBINSON	CGN35	1H	6	25	13		44	539	196.00	9.33
27121	HOELL	CGN35	1H	6	25	13		44	539	196.00	9.33
27122	BUCHANAN	CGN35	1H	6	25	13		44	539	196.00	9.33
27123	BERKLEY	CGN35	1H	6	25	13		44	539	196.00	9.33
27124	STRAUSS	CGN35	1H	6	25	13		44	539	196.00	9.33
27125	CONYNGHAM	CGN35	1H	6	25	13		44	539	196.00	9.33
27126	SHIMES	CGN35	1H	6	25	13		44	539	196.00	9.33
27127	TATNALL	CGN35	1H	6	25	13		44	539	196.00	9.33

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY77	FY78	FY79	FY80	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
04087	GOLDSBOROUGH	DDG20	1K	7	4	3		14	339	159.00	8.803
04088	COCHRANE	DDG21	1K	10	8	3		21	339	134.00	15.071
04090	STOUDERT	DDG22	1K	4	7	3	1	20	339	140.00	14.283
04091	BYRD	DDG23	1K	6	13	6	2	27	339	129.00	23.437
04094	WADSWELL	DDG24	1K	5	4	5		21	339	113.00	18.584
20574	SPRUANCE	DDG25	1L	8	4	2		9	339	113.00	9.708
20575	P.F. FUSTIER	DDG26	1L	2	5	3		10	339	125.00	9.708
20576	KINCAID	DDG27	1L	2	5	3		10	339	125.00	9.708
20577	HELMITT	DDG28	1L	2	5	3		10	339	125.00	9.708
20578	ELLISIT	DDG29	1L	2	5	3		10	339	125.00	9.708
20580	RADFORD	DDG30	1L	2	5	3		10	339	125.00	9.708
20581	PETERSON	DDG31	1L	2	5	3		10	339	125.00	9.708
20582	CARON	DDG32	1L	2	5	3		10	339	125.00	9.708
04092	BROCKE	FFG1	1M	11	15	10	1	37	310	132.00	11.999
04093	RAMSEY	FFG2	1M	12	16	10		38	310	132.00	11.999
04094	SCHOFIELD	FFG3	1M	12	16	10		38	310	132.00	11.999
04095	TALBOT	FFG4	1M	12	16	10		38	310	132.00	11.999
04096	J.L. PAGE	FFG5	1M	12	16	10		38	310	132.00	11.999
04097	J.A. FURER	FFG6	1M	12	16	10		38	310	132.00	11.999
04098	HUGHES	FFG7	1M	12	16	10		38	310	132.00	11.999
20040	BROWN	FFG8	1M	12	16	10		38	310	132.00	11.999
20041	PULLIN	FFG9	1M	12	16	10		38	310	132.00	11.999
20042	AYLWINMERY	FFG10	1M	12	16	10		38	310	132.00	11.999
20043	MONTGOMERY	FFG11	1M	12	16	10		38	310	132.00	11.999
20044	COOK	FFG12	1M	12	16	10		38	310	132.00	11.999
20045	MCCANDLESS	FFG13	1M	12	16	10		38	310	132.00	11.999
20046	HEARY	FFG14	1M	12	16	10		38	310	132.00	11.999
20047	BRENTON	FFG15	1M	12	16	10		38	310	132.00	11.999
20048	KIRK	FFG16	1M	12	16	10		38	310	132.00	11.999
20049	BARBEY	FFG17	1M	12	16	10		38	310	132.00	11.999
20050	BROWN	FFG18	1M	12	16	10		38	310	132.00	11.999
20051	AINSMURTH	FFG19	1M	12	16	10		38	310	132.00	11.999
20052	HART	FFG20	1M	12	16	10		38	310	132.00	11.999
20053	CARODANNO	FFG21	1M	12	16	10		38	310	132.00	11.999
20054	PHARRIS	FFG22	1M	12	16	10		38	310	132.00	11.999
20055	TRUETT	FFG23	1M	12	16	10		38	310	132.00	11.999
20056	MUINESTER	FFG24	1M	12	16	10		38	310	132.00	11.999
20057	KNOX	FFG25	1M	12	16	10		38	310	132.00	11.999
20058	HEPBURN	FFG26	1M	12	16	10		38	310	132.00	11.999
20059	CONNOLLY	FFG27	1M	12	16	10		38	310	132.00	11.999
20060	RATHEBURN	FFG28	1M	12	16	10		38	310	132.00	11.999
20061	MEYERKORD	FFG29	1M	12	16	10		38	310	132.00	11.999
20062	W.S. SIMS	FFG30	1M	12	16	10		38	310	132.00	11.999
20063	WHIPPLE	FFG31	1M	12	16	10		38	310	132.00	11.999
20064	REASONER	FFG32	1M	12	16	10		38	310	132.00	11.999
20065	LUCAS	FFG33	1M	12	16	10		38	310	132.00	11.999
20066	STEIN SHIELDS	FFG34	1M	12	16	10		38	310	132.00	11.999
20067	HARVIN	FFG35	1M	12	16	10		38	310	132.00	11.999
20068	HARMON	FFG36	1M	12	16	10		38	310	132.00	11.999
20069	WREELAND	FFG37	1M	12	16	10		38	310	132.00	11.999
20070	BAGLEY	FFG38	1M	12	16	10		38	310	132.00	11.999
20071	DOWNS	FFG39	1M	12	16	10		38	310	132.00	11.999
20072	BADGER	FFG40	1M	12	16	10		38	310	132.00	11.999

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY77	FY78	FY79	FY80	TOTAL	AVG CREW	34 MO SERVICE	LOSS RATE (%)
54068	PEABAY	FF1U73	1N	6	4	0	1	11	270	99.00	10.161
54069	H-E-HULT	FF1U74	1N	5	5	0	1	11	270	95.00	10.730
54070	TRIPPE	FF1U75	1N	5	7	1	1	13	270	78.00	10.066
54071	FANNING	FF1U76	1N	6	10	1	2	19	270	95.00	22.352
54072	OUELLET	FF1U77	1P	6	5	4	2	17	270	90.00	19.999
54073	GARCIA	FF1U78	1P	6	9	3	2	20	270	100.00	19.999
54074	BRADLEY	FF1U79	1P	6	0	0	2	8	260	75.00	22.105
54075	MC DONNELL	FF1U80	1P	5	0	1	2	8	260	75.00	18.993
54076	BOURBY	FF1U81	1P	5	1	1	2	9	260	100.00	17.894
54077	DAVIDSON	FF1U82	1P	5	1	1	1	8	260	96.00	17.894
54078	VOGE	FF1U83	1P	5	3	7	1	16	260	96.00	17.894
54079	SAMPLE	FF1U84	1P	5	3	3	1	12	260	96.00	17.894
54080	KOELSCH	FF1U85	1P	5	8	3	1	17	260	96.00	17.894
54081	DAVID	FF1U86	1P	5	8	3	1	17	260	96.00	17.894
54082	RALEIGH	FF1U87	1P	5	8	3	1	17	260	96.00	17.894
54083	VANCOUVER	FF1U88	1P	5	8	3	1	17	260	96.00	17.894
54084	AUSTIN	FF1U89	1P	5	8	3	1	17	260	96.00	17.894
54085	OGDEN	FF1U90	1P	5	8	3	1	17	260	96.00	17.894
54086	DULUTH	FF1U91	1P	5	8	3	1	17	260	96.00	17.894
54087	LEVELAND	FF1U92	1P	5	8	3	1	17	260	96.00	17.894
54088	DUBUQUE	FF1U93	1P	5	8	3	1	17	260	96.00	17.894
54089	DENVER	FF1U94	1P	5	8	3	1	17	260	96.00	17.894
54090	JUNEAU	FF1U95	1P	5	8	3	1	17	260	96.00	17.894
54091	NASHVILLE	FF1U96	1P	5	8	3	1	17	260	96.00	17.894
54092	TRENTON	FF1U97	1P	5	8	3	1	17	260	96.00	17.894
54093	PONCE	FF1U98	1P	5	8	3	1	17	260	96.00	17.894
54094	CHARLESTON	FF1U99	1P	5	8	3	1	17	260	96.00	17.894
54095	DURHAM	FF1U00	1P	5	8	3	1	17	260	96.00	17.894
54096	MOBILE	FF1U01	1P	5	8	3	1	17	260	96.00	17.894
54097	SAN ANTONIO	FF1U02	1P	5	8	3	1	17	260	96.00	17.894
54098	EL PASO	FF1U03	1P	5	8	3	1	17	260	96.00	17.894
54099	SPRING GROVE	FF1U04	1P	5	8	3	1	17	260	96.00	17.894
54100	ALAMO	FF1U05	1P	5	8	3	1	17	260	96.00	17.894
54101	HEMPHILL	FF1U06	1P	5	8	3	1	17	260	96.00	17.894
54102	ANCHORAGE	FF1U07	1P	5	8	3	1	17	260	96.00	17.894
54103	PORTLAND	FF1U08	1P	5	8	3	1	17	260	96.00	17.894
54104	PENSACOLA	FF1U09	1P	5	8	3	1	17	260	96.00	17.894
54105	MOUNT VERNON	FF1U10	1P	5	8	3	1	17	260	96.00	17.894
54106	FORT FISHER	FF1U11	1P	5	8	3	1	17	260	96.00	17.894
54107	MANITOWOC	FF1U12	1P	5	8	3	1	17	260	96.00	17.894
54108	SUNTER	FF1U13	1P	5	8	3	1	17	260	96.00	17.894
54109	FRESNO	FF1U14	1P	5	8	3	1	17	260	96.00	17.894
54110	PORTA	FF1U15	1P	5	8	3	1	17	260	96.00	17.894
54111	ERENDICK	FF1U16	1P	5	8	3	1	17	260	96.00	17.894
54112	SCHENECTADY	FF1U17	1P	5	8	3	1	17	260	96.00	17.894
54113	TUSCALOOSA	FF1U18	1P	5	8	3	1	17	260	96.00	17.894
54114	SAN JUAN	FF1U19	1P	5	8	3	1	17	260	96.00	17.894
54115	SAN BERNARDINO	FF1U20	1P	5	8	3	1	17	260	96.00	17.894
54116	BOULDER	FF1U21	1P	5	8	3	1	17	260	96.00	17.894
54117	RACINE	FF1U22	1P	5	8	3	1	17	260	96.00	17.894
54118	SPARTANBURG CTY	FF1U23	1P	5	8	3	1	17	260	96.00	17.894

ATTENTION RATE BY CAT/CLASS

SLIP NAME	UIC	UIC NO	CAT/CLASS	FY72	FY74	FY79	FY80	TOTAL	AVG CREW	< 34 MO SERVICE	LOS RATE (%)
FAIRFAX CTY	00033	LS11193	2F	3	3	2	3	12	2	08.00	14.33
LANCURE CTY	00033	LS11194	2F	12	15	7	1	22	2	102.00	27.28
BARBOUR CTY	00033	LS11195	2F	1	15	3	1	20	2	195.00	27.28
BARSTABLE CTY	00033	LS11196	2F	1	15	0	1	18	2	175.00	23.33
BRIISTOL CTY	00033	LS11197	2F	1	11	0	1	20	2	175.00	23.33
NEWPORT	00033	LS11198	2F	1	11	0	1	20	2	175.00	23.33
BLUE RIDGE	00033	LS11199	2F	1	11	0	1	20	2	175.00	23.33
MOUNT WHITNEY	00033	LS11200	2F	1	11	0	1	20	2	175.00	23.33
SURIBACHI	00033	LS11201	2F	1	11	0	1	20	2	175.00	23.33
MAUNA KILA	00033	LS11202	2F	1	11	0	1	20	2	175.00	23.33
NITRO	00033	LS11203	2F	1	11	0	1	20	2	175.00	23.33
BUTTE	00033	LS11204	2F	1	11	0	1	20	2	175.00	23.33
SANTA BARBARA	00033	LS11205	2F	1	11	0	1	20	2	175.00	23.33
MOUNT HOOD	00033	LS11206	2F	1	11	0	1	20	2	175.00	23.33
FLINT	00033	LS11207	2F	1	11	0	1	20	2	175.00	23.33
SHASTA	00033	LS11208	2F	1	11	0	1	20	2	175.00	23.33
MOUNT BAKER	00033	LS11209	2F	1	11	0	1	20	2	175.00	23.33
KIRK	00033	LS11210	2F	1	11	0	1	20	2	175.00	23.33
MIAARA FALLS	00033	LS11211	2F	1	11	0	1	20	2	175.00	23.33
WMT PLAINS	00033	LS11212	2F	1	11	0	1	20	2	175.00	23.33
CONCORD	00033	LS11213	2F	1	11	0	1	20	2	175.00	23.33
SAN DIEGO	00033	LS11214	2F	1	11	0	1	20	2	175.00	23.33
SAN JUAN	00033	LS11215	2F	1	11	0	1	20	2	175.00	23.33
SYLVANIA	00033	LS11216	2F	1	11	0	1	20	2	175.00	23.33
CALOOSTE	00033	LS11217	2F	1	11	0	1	20	2	175.00	23.33
SACRAMENTO	00033	LS11218	2F	1	11	0	1	20	2	175.00	23.33
SACRAMENTO	00033	LS11219	2F	1	11	0	1	20	2	175.00	23.33
SEATTLE	00033	LS11220	2F	1	11	0	1	20	2	175.00	23.33
DETROIT	00033	LS11221	2F	1	11	0	1	20	2	175.00	23.33
MILWAUKEE	00033	LS11222	2F	1	11	0	1	20	2	175.00	23.33
KANSAS CITY	00033	LS11223	2F	1	11	0	1	20	2	175.00	23.33
SAVANNAH	00033	LS11224	2F	1	11	0	1	20	2	175.00	23.33
WABASH	00033	LS11225	2F	1	11	0	1	20	2	175.00	23.33
KALAMAZOO	00033	LS11226	2F	1	11	0	1	20	2	175.00	23.33
ROAMORE	00033	LS11227	2F	1	11	0	1	20	2	175.00	23.33
CONSTANCE	00033	LS11228	2F	1	11	0	1	20	2	175.00	23.33
ENGAGE	00033	LS11229	2F	1	11	0	1	20	2	175.00	23.33
EXCEL	00033	LS11230	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11231	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11232	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11233	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11234	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11235	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11236	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11237	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11238	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11239	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11240	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11241	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11242	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11243	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11244	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11245	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11246	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11247	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11248	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11249	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11250	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11251	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11252	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11253	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11254	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11255	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11256	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11257	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11258	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11259	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11260	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11261	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11262	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11263	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11264	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11265	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11266	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11267	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11268	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11269	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11270	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11271	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11272	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11273	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11274	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11275	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11276	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11277	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11278	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11279	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11280	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11281	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11282	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11283	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11284	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11285	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11286	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11287	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11288	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11289	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11290	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11291	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11292	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11293	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11294	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11295	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11296	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11297	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11298	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11299	2F	1	11	0	1	20	2	175.00	23.33
EXPLORIT	00033	LS11300	2F	1	11	0	1	20	2	175.00	23.33

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY77	FY78	FY79	FY80	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (X)
07994	PLUCK	MS0464	4A		1			1	56	4.00	25.000
08146	CUNQUEST	MS0488	4A		1			1	56	4.00	25.000
08167	GALLANT	MS0489	4A			1		1	56	5.00	19.999
08150	PLEDGE	MS0492	4A	1				1	56	10.00	19.999
08157	ADROIT	MS0509	4A					4	56	17.00	23.529
08159	AFFRAY	MS0511	4A			1		1	56	17.00	23.529
06020	PRAIRIE	AD15	5A	13	20	8		41	827	307.00	15.415
06038	SIERRA	AD18	5A	16	20	8		44	827	307.00	15.415
06039	YOSEMITE	AD19	5A	18	50	12		80	827	307.00	15.415
06037	SAMUEL WOMPERS	AD17	5D	16	44	12		72	1,286	378.00	22.072
06044	PUGET SOUND	AD18	5D	20	50	3		73	1,286	378.00	22.072
08037	CHENAMDOAH	AD14	5C	18	7	3		23	847	331.00	19.335
08046	AJAX	AK0	5D	18	36	19		73	847	308.00	19.335
08048	VULCAN	AK0	5D	18	23	19		59	847	308.00	19.335
08088	JASON	AK0	5D	8	19	9		35	847	308.00	19.335
08081	TOTALS		227	1,429	2,411	1,190	238	5,274	453.0	27,701.00	19.039

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY81	FY82	FY83	FY84	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
20024	MISSISSIPPI	CGM40	1A	5	3	8	2	18	539	158.00	10.714
20081	VERMONT	CGM38	1A	4	4	9		17	539	158.00	15.120
20082	TEXAS	CGM39	1A	5	4	9	2	22	539	158.00	14.064
20087	ARKANSAS	CGM41	1A		7				539	158.00	14.035
20541	CALIFORNIA	CGM36	1B	3	10	3	1	16	579	149.00	19.958
20692	SOUTH CAROLINA	CGM37	1B	4	5	9	1	19	579	149.00	19.071
22712	TRUXTON	CUN35	1C	5	5	9	2	21	566	153.00	17.764
22700	BATON ROUGE	CUN35	1C	5	5	9	1	20	566	153.00	17.047
03051	LONG BEACH	CUN9	1C	8	1	1	5	15	444	126.00	22.164
22701	BECKMAN	CG20	1C	3	8	7		18	444	126.00	22.087
22702	J. DANIELS	CG20	1C	3	8	7		18	444	126.00	22.087
22703	WATMIGHT	CG20	1C	3	8	7		18	444	126.00	22.087
22704	JOHNETT	CG20	1C	3	8	7		18	444	126.00	22.087
22705	JOHNETT	CG20	1C	3	8	7		18	444	126.00	22.087
22706	JOHNETT	CG20	1C	3	8	7		18	444	126.00	22.087
22707	STEVENETT	CG20	1C	3	8	7		18	444	126.00	22.087
22708	W. N. STANLEY	CG20	1C	3	8	7		18	444	126.00	22.087
22709	FOX	CG20	1C	3	8	7		18	444	126.00	22.087
22710	BIDDLE	CG20	1C	3	8	7		18	444	126.00	22.087
22711	LEAHY	CG20	1C	3	8	7		18	444	126.00	22.087
22087	H.E. YARNELL	CG17	1H	10	5	11	1	27	444	126.00	12.972
22088	WORDEN	CG17	1H	10	5	11	1	27	444	126.00	12.972
22089	DALE	CG17	1H	10	5	11	1	27	444	126.00	12.972
22090	R.K. TURNER	CG17	1H	10	5	11	1	27	444	126.00	12.972
22091	GRIDLEY	CG21	1H	10	5	11	1	27	444	126.00	12.972
22092	ENGLAND	CG21	1H	10	5	11	1	27	444	126.00	12.972
22093	HALSEY	CG21	1H	10	5	11	1	27	444	126.00	12.972
22094	REEVES	CG21	1H	10	5	11	1	27	444	126.00	12.972
22095	KIDD	CG24	1H	10	5	11	1	27	444	126.00	12.972
21430	CALLAGHAN	DDG994	1I	1	1	1		3	318	145.00	17.482
21431	SCOTT	DDG995	1I	1	1	1		3	318	145.00	17.482
21432	CHANDLER	DDG996	1I	1	1	1		3	318	145.00	17.482
21433	FARRAGUT	DDG997	1I	1	1	1		3	318	145.00	17.482
22232	LUCE	DDG33	1J	10	1	1	1	13	376	88.00	13.923
22233	MACDONOUGH	DDG33	1J	10	1	1	1	13	376	88.00	13.923
22234	COONTZ	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22235	KING	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22236	MANAN	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22237	DANIELS	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22238	W.V. PRATT	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22239	DEWEY	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22240	PREBLE	DDG41	1J	10	1	1	1	13	376	88.00	13.923
22241	ADAMS	DDG41	1J	10	1	1	1	13	376	88.00	13.923
04069	JOHN KING	DDG3	1K	1	1	1	1	4	330	109.00	21.209
04070	LAWRENCE	DDG3	1K	1	1	1	1	4	330	109.00	21.209
04071	C.V. TICKETS	DDG3	1K	1	1	1	1	4	330	109.00	21.209
04072	BARNEY	DDG5	1K	1	1	1	1	4	330	109.00	21.209
04073	W.B. MILLON	DDG5	1K	1	1	1	1	4	330	109.00	21.209
04074	MCCORMICK	DDG7	1K	1	1	1	1	4	330	109.00	21.209
04075	TOMERSON	DDG7	1K	1	1	1	1	4	330	109.00	21.209
04076	SAMPSON	DDG10	1K	1	1	1	1	4	330	109.00	21.209
04077	SELLERS	DDG11	1K	1	1	1	1	4	330	109.00	21.209
04078	ROBISON	DDG12	1K	1	1	1	1	4	330	109.00	21.209
04079	HOEL	DDG13	1K	1	1	1	1	4	330	109.00	21.209

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY91	FY92	FY93	FY94	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (X)
06080	BUCNAM	DDG14	1K	1	1	0	1	3	39	120.00	17.163
06081	BERKLEY	DDG15	1K	2	2	0	1	5	39	102.00	17.427
06082	STRAUSS	DDG16	1K	2	2	0	1	5	39	83.00	17.851
06083	CONINGHAM	DDG17	1K	2	2	0	1	5	39	83.00	17.851
06084	SENECA	DDG18	1K	2	2	0	1	5	39	83.00	17.851
06085	TATNALL	DDG19	1K	2	2	0	1	5	39	83.00	17.851
06086	GOLDSBOROUGH	DDG20	1K	2	2	0	1	5	39	83.00	17.851
06087	COCHRANE	DDG21	1K	2	2	0	1	5	39	83.00	17.851
06088	STODDERT	DDG22	1K	2	2	0	1	5	39	83.00	17.851
06089	BYRD	DDG23	1K	2	2	0	1	5	39	83.00	17.851
06090	WADDELL	DDG24	1K	2	2	0	1	5	39	83.00	17.851
06091	SPRANCE	DDG25	1K	2	2	0	1	5	39	83.00	17.851
06092	P. F. FUSTER	DDG26	1K	2	2	0	1	5	39	83.00	17.851
06093	KIMMEL	DDG27	1K	2	2	0	1	5	39	83.00	17.851
06094	NEWITT	DDG28	1K	2	2	0	1	5	39	83.00	17.851
06095	ELLIS	DDG29	1K	2	2	0	1	5	39	83.00	17.851
06096	RADFORD	DDG30	1K	2	2	0	1	5	39	83.00	17.851
06097	PETERSON	DDG31	1K	2	2	0	1	5	39	83.00	17.851
06098	CARV	DDG32	1K	2	2	0	1	5	39	83.00	17.851
06099	OLDENDORF	DDG33	1K	2	2	0	1	5	39	83.00	17.851
06100	JOHN YOUNG	DDG34	1K	2	2	0	1	5	39	83.00	17.851
06101	COMTE DE GRASSE	DDG35	1K	2	2	0	1	5	39	83.00	17.851
06102	ORRILL	DDG36	1K	2	2	0	1	5	39	83.00	17.851
06103	MERRILL	DDG37	1K	2	2	0	1	5	39	83.00	17.851
06104	BRISSOE	DDG38	1K	2	2	0	1	5	39	83.00	17.851
06105	STUMBLE	DDG39	1K	2	2	0	1	5	39	83.00	17.851
06106	CONALLY	DDG40	1K	2	2	0	1	5	39	83.00	17.851
06107	MOOREHUGGER	DDG41	1K	2	2	0	1	5	39	83.00	17.851
06108	JOHN HANCOCK	DDG42	1K	2	2	0	1	5	39	83.00	17.851
06109	NICHOLSON	DDG43	1K	2	2	0	1	5	39	83.00	17.851
06110	JOHN RODGERS	DDG44	1K	2	2	0	1	5	39	83.00	17.851
06111	LEFTWICH	DDG45	1K	2	2	0	1	5	39	83.00	17.851
06112	CUSHING	DDG46	1K	2	2	0	1	5	39	83.00	17.851
06113	HARRY W. HILL	DDG47	1K	2	2	0	1	5	39	83.00	17.851
06114	OHAMMON	DDG48	1K	2	2	0	1	5	39	83.00	17.851
06115	THOMAS	DDG49	1K	2	2	0	1	5	39	83.00	17.851
06116	DEYER	DDG50	1K	2	2	0	1	5	39	83.00	17.851
06117	INGERSOLL	DDG51	1K	2	2	0	1	5	39	83.00	17.851
06118	ELECHER	DDG52	1K	2	2	0	1	5	39	83.00	17.851
06119	BROCKE	DDG53	1K	2	2	0	1	5	39	83.00	17.851
06120	RAMSEY	DDG54	1K	2	2	0	1	5	39	83.00	17.851
06121	SCHOFIELD	DDG55	1K	2	2	0	1	5	39	83.00	17.851
06122	TALBOT	DDG56	1K	2	2	0	1	5	39	83.00	17.851
06123	R. L. PAGE	DDG57	1K	2	2	0	1	5	39	83.00	17.851
06124	J. A. FURER	DDG58	1K	2	2	0	1	5	39	83.00	17.851
06125	HEWES	DDG59	1K	2	2	0	1	5	39	83.00	17.851
06126	BOWEN	DDG60	1K	2	2	0	1	5	39	83.00	17.851
06127	PAUL	DDG61	1K	2	2	0	1	5	39	83.00	17.851
06128	AYLMER	DDG62	1K	2	2	0	1	5	39	83.00	17.851
06129	MONTGOMERY	DDG63	1K	2	2	0	1	5	39	83.00	17.851
06130	COOK	DDG64	1K	2	2	0	1	5	39	83.00	17.851

ATTITUION RATE BY CAT/CLASS

JIC	SHIP NAME	HULL NO	CAT/CLASS	FY91	FY92	FY93	FY94	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
20055	MCCANDLESS	FF1044	IN	6	2	3	2	13	270	61-00	13-289
20056	BEARY	FF1045	IN	1	3	3	3	10	270	86-00	19-2767
20057	BRENTON	FF1046	IN	1	3	3	3	10	270	66-00	19-2767
20058	KIRK	FF1047	IN	1	3	3	3	10	270	66-00	19-2767
20059	BABEY	FF1048	IN	1	3	3	3	10	270	66-00	19-2767
20060	BROWN	FF1049	IN	1	3	3	3	10	270	66-00	19-2767
20061	AINSMORTH	FF1050	IN	1	3	3	3	10	270	66-00	19-2767
20062	HART	FF1051	IN	1	3	3	3	10	270	66-00	19-2767
20063	CAPODANNO	FF1052	IN	1	3	3	3	10	270	66-00	19-2767
20064	PHARRIS	FF1053	IN	1	3	3	3	10	270	66-00	19-2767
20065	TRUETT	FF1054	IN	1	3	3	3	10	270	66-00	19-2767
20066	MUINSTER	FF1055	IN	1	3	3	3	10	270	66-00	19-2767
20067	KNOX	FF1056	IN	1	3	3	3	10	270	66-00	19-2767
20068	HEPBURN	FF1057	IN	1	3	3	3	10	270	66-00	19-2767
20069	CONMOLE	FF1058	IN	1	3	3	3	10	270	66-00	19-2767
20070	RATHERFORD	FF1059	IN	1	3	3	3	10	270	66-00	19-2767
20071	MEYERS	FF1060	IN	1	3	3	3	10	270	66-00	19-2767
20072	WATSON	FF1061	IN	1	3	3	3	10	270	66-00	19-2767
20073	WHIPPLE	FF1062	IN	1	3	3	3	10	270	66-00	19-2767
20074	REASONER	FF1063	IN	1	3	3	3	10	270	66-00	19-2767
20075	LOCKWOOD	FF1064	IN	1	3	3	3	10	270	66-00	19-2767
20076	STEIN	FF1065	IN	1	3	3	3	10	270	66-00	19-2767
20077	MARVIN SHIELDS	FF1066	IN	1	3	3	3	10	270	66-00	19-2767
20078	HAMMOND	FF1067	IN	1	3	3	3	10	270	66-00	19-2767
20079	VREELAND	FF1068	IN	1	3	3	3	10	270	66-00	19-2767
20080	BAGLEY	FF1069	IN	1	3	3	3	10	270	66-00	19-2767
20081	DOWNEY	FF1070	IN	1	3	3	3	10	270	66-00	19-2767
20082	PEABRY	FF1071	IN	1	3	3	3	10	270	66-00	19-2767
20083	H-E HOLT	FF1072	IN	1	3	3	3	10	270	66-00	19-2767
20084	TRIPLE	FF1073	IN	1	3	3	3	10	270	66-00	19-2767
20085	FANNING	FF1074	IN	1	3	3	3	10	270	66-00	19-2767
20086	OUCELLET	FF1075	IN	1	3	3	3	10	270	66-00	19-2767
20087	GARCIA	FF1076	IN	1	3	3	3	10	270	66-00	19-2767
20088	BRADLEY	FF1077	IN	1	3	3	3	10	270	66-00	19-2767
20089	MCDONNELL	FF1078	IN	1	3	3	3	10	270	66-00	19-2767
20090	BRUMBY	FF1079	IN	1	3	3	3	10	270	66-00	19-2767
20091	DAVIDSON	FF1080	IN	1	3	3	3	10	270	66-00	19-2767
20092	VOGE	FF1081	IN	1	3	3	3	10	270	66-00	19-2767
20093	SAMPLE	FF1082	IN	1	3	3	3	10	270	66-00	19-2767
20094	KOELECH	FF1083	IN	1	3	3	3	10	270	66-00	19-2767
20095	DAVID	FF1084	IN	1	3	3	3	10	270	66-00	19-2767
20096	FARRION	FF1085	IN	1	3	3	3	10	270	66-00	19-2767
20097	WILLIAMS	FF1086	IN	1	3	3	3	10	270	66-00	19-2767
20098	GALLERY	FF1087	IN	1	3	3	3	10	270	66-00	19-2767
20099	MCMERNY	FF1088	IN	1	3	3	3	10	270	66-00	19-2767
20100	RALEIGH	FF1089	IN	1	3	3	3	10	270	66-00	19-2767
20101	VANCOUVER	FF1090	IN	1	3	3	3	10	270	66-00	19-2767
20102	AUSTIN	FF1091	IN	1	3	3	3	10	270	66-00	19-2767
20103	OGDEN	FF1092	IN	1	3	3	3	10	270	66-00	19-2767
20104	DULUTH	FF1093	IN	1	3	3	3	10	270	66-00	19-2767
20105	CLEVELAND	FF1094	IN	1	3	3	3	10	270	66-00	19-2767
20106	DUBOUE	FF1095	IN	1	3	3	3	10	270	66-00	19-2767

ATTENTION RATE BY CAT/CLASS

UIC	SHIP NAME	MULL NO	CAT/CLASS	FY81	FY82	FY83	FY84	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (2)
07183	DENVER	LPD90	2A	10	17	0	1	32	400	142.00	20.409
07184	JUNEAU	LPD10	2A	4	19	15	3	30	400	135.00	31.111
07195	SHREVEPORT	LPD12	2A	5	6	10	2	30	400	104.00	29.840
07196	NASHVILLE	LPD13	2A	11	15	9	2	30	400	118.00	22.972
07201	TRENTON	LPD14	2A	11	10	9	2	34	400	148.00	22.909
07201	PONCE	LPD15	2A	6	5	4	1	13	400	101.00	17.441
05445	CHARLESTON	LAA13	2B	1	7	3	1	13	336	60.00	18.441
05445	DURHAM	LAA14	2B	1	7	3	1	13	336	60.00	18.441
05445	MOBILE	LAA15	2B	1	7	3	1	13	336	60.00	18.441
05445	SATAM LOUIS	LAA16	2B	1	7	3	1	13	336	60.00	18.441
05445	EL PASO GROVE	LAA17	2B	1	7	3	1	13	336	60.00	18.441
05445	ALAMO	LSD33	2C	1	10	2	2	15	329	132.00	22.709
05445	HERMITAGE	LSD34	2C	1	10	2	2	15	329	132.00	22.709
05445	ANCHORAGE	LSD35	2C	1	10	2	2	15	329	132.00	22.709
07203	PENSAOLA	LSD36	2D	1	10	2	2	15	331	92.00	25.331
20012	PENSACOLA	LSD37	2D	1	10	2	2	15	331	92.00	25.331
20013	MOUNT VERNON	LSD38	2D	1	10	2	2	15	331	92.00	25.331
20014	FORT FISHER	LSD39	2D	1	10	2	2	15	331	92.00	25.331
20015	MAMITOWOC	LSD40	2D	1	10	2	2	15	331	92.00	25.331
20019	SUMNER	LST11	2E	1	15	3	1	19	241	102.00	19.229
20020	FRENO	LST12	2E	1	15	3	1	19	241	102.00	19.229
20021	PEORIA	LST13	2E	1	15	3	1	19	241	102.00	19.229
20022	FREDRICK	LST14	2E	1	15	3	1	19	241	102.00	19.229
20023	SCHENECTADY	LST15	2E	1	15	3	1	19	241	102.00	19.229
20024	CAYUGA	LST16	2E	1	15	3	1	19	241	102.00	19.229
20025	TUSCALOOSA	LST17	2E	1	15	3	1	19	241	102.00	19.229
20026	SAGINAW	LST18	2E	1	15	3	1	19	241	102.00	19.229
20027	SAN BERNARDINO	LST19	2E	1	15	3	1	19	241	102.00	19.229
20028	BUILDER	LST20	2E	1	15	3	1	19	241	102.00	19.229
20029	RACINE	LST21	2E	1	15	3	1	19	241	102.00	19.229
20030	SPARTANBURG CTY	LST22	2E	1	15	3	1	19	241	102.00	19.229
20031	FATHEA CTY	LST23	2E	1	15	3	1	19	241	102.00	19.229
20032	LAMOUR CTY	LST24	2E	1	15	3	1	19	241	102.00	19.229
20033	BARBOUR CTY	LST25	2E	1	15	3	1	19	241	102.00	19.229
20034	HARLAN CTY	LST26	2E	1	15	3	1	19	241	102.00	19.229
20035	HARNSFORD CTY	LST27	2E	1	15	3	1	19	241	102.00	19.229
20036	BRISTOL CTY	LST28	2E	1	15	3	1	19	241	102.00	19.229
20037	NEWPORT	LST29	2E	1	15	3	1	19	241	102.00	19.229
20038	PLUE MIDGE	LST30	2E	1	15	3	1	19	241	102.00	19.229
20039	MOUNT WHITNEY	LST31	2E	1	15	3	1	19	241	102.00	19.229
20040	SURIBACHI	LST32	2E	1	15	3	1	19	241	102.00	19.229
20041	MAUNA KLA	LST33	2E	1	15	3	1	19	241	102.00	19.229
20042	HALAKALA	LST34	2E	1	15	3	1	19	241	102.00	19.229
20043	NITRO	LST35	2E	1	15	3	1	19	241	102.00	19.229
20044	PIRO	LST36	2E	1	15	3	1	19	241	102.00	19.229
20045	BUTE	LST37	2E	1	15	3	1	19	241	102.00	19.229
20046	SANTA BARBARA	LST38	2E	1	15	3	1	19	241	102.00	19.229
20047	MOUNT HOO	LST39	2E	1	15	3	1	19	241	102.00	19.229
20048	FLINT	LST40	2E	1	15	3	1	19	241	102.00	19.229
20049	SHASTA	LST41	2E	1	15	3	1	19	241	102.00	19.229
20050	MOUNT HAKER	LST42	2E	1	15	3	1	19	241	102.00	19.229
20051	KISKA	LST43	2E	1	15	3	1	19	241	102.00	19.229

ATTENTION RATE BY CAT/CLASS											
UIC	SHIP NAME	HULL NO	CAT/CLASS	FY35	FY36	FY37	FY38	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
21024	MISSISSIPPI	CGN40	1A	1	1			15	539	124.00	12.090
21025	VIRGINIA	CGN39	1A	3	2	4	1	10	539	140.00	6.428
21026	TEXAS	CGN38	1A	2	2	2		8	539	116.00	6.499
21027	ARKANSAS	CGN37	1B	2	2		1	10	539	126.00	7.007
21028	CALIFORNIA	CGN36	1B		11	3		14	539	139.00	13.061
21029	SOUTH CAROLINA	CGN35	1C	3	11	8	1	23	539	158.00	13.461
21030	TRUXTON	CGN34	1D	3	14	4	3	24	539	158.00	13.461
21031	BALTIMORE	CGN33	1E	9	11	9	1	30	539	158.00	13.461
21032	LONG BEACH	CGN32	1F	9	11	9	1	30	539	158.00	13.461
21033	YORKTOWN	CGN31	1F						539	158.00	13.461
21034	TICONDEROGA	CGN30	1F	2	16	2		19	539	158.00	13.461
21035	VINCENNES	CGN29	1G	11	16	1	1	29	539	158.00	13.461
21036	PELKNAP	CGN28	1G	11	16	1	1	29	539	158.00	13.461
21037	J. DANIELS	CGN27	1G	11	16	1	1	29	539	158.00	13.461
21038	HATMARI	CGN26	1G	11	16	1	1	29	539	158.00	13.461
21039	JOULET	CGN25	1G	11	16	1	1	29	539	158.00	13.461
21040	STERRETT	CGN24	1G	11	16	1	1	29	539	158.00	13.461
21041	M. M. STANDLEY	CGN23	1G	11	16	1	1	29	539	158.00	13.461
21042	FOX	CGN22	1H	11	16	1	1	29	539	158.00	13.461
21043	BIDLEY	CGN21	1H	11	16	1	1	29	539	158.00	13.461
21044	LEAHY	CGN20	1H	11	16	1	1	29	539	158.00	13.461
21045	H-E-YARNELL	CGN19	1H	11	16	1	1	29	539	158.00	13.461
21046	WORDEN	CGN18	1H	11	16	1	1	29	539	158.00	13.461
21047	DALY	CGN17	1H	11	16	1	1	29	539	158.00	13.461
21048	R. K. TURNER	CGN16	1H	11	16	1	1	29	539	158.00	13.461
21049	CHIDLEY	CGN15	1H	11	16	1	1	29	539	158.00	13.461
21050	ENGLEND	CGN14	1H	11	16	1	1	29	539	158.00	13.461
21051	MALSEY	CGN13	1H	11	16	1	1	29	539	158.00	13.461
21052	REEVES	CGN12	1H	11	16	1	1	29	539	158.00	13.461
21053	KIDD	DDG993	1H		15	3		18	318	70.00	7.142
21054	CALLAGHAN	DDG994	1H		15	3		18	318	70.00	7.142
21055	SCOTT	DDG995	1H		15	3	1	19	318	70.00	7.142
21056	CHANDLER	DDG996	1H		15	3		18	318	70.00	7.142
21057	FARRAGUT	DDG997	1H		15	3		18	318	70.00	7.142
21058	LUCE	DDG998	1H		15	3		18	318	70.00	7.142
21059	MACDONOUGH	DDG999	1H		15	3		18	318	70.00	7.142
21060	COONTZ	DDG1000	1H		15	3		18	318	70.00	7.142
21061	KING	DDG1001	1H		15	3		18	318	70.00	7.142
21062	MAHAN	DDG1002	1H		15	3		18	318	70.00	7.142
21063	DANLAW	DDG1003	1H		15	3		18	318	70.00	7.142
21064	M-V. PRATT	DDG1004	1H		15	3		18	318	70.00	7.142
21065	DEWEY	DDG1005	1H		15	3		18	318	70.00	7.142
21066	PREBLE	DDG1006	1H		15	3		18	318	70.00	7.142
21067	ADAMS	DDG1007	1H		15	3		18	318	70.00	7.142
21068	JOHN KING	DDG1008	1H		15	3		18	318	70.00	7.142
21069	LAWRENCE	DDG1009	1H		15	3		18	318	70.00	7.142
21070	C. V. RICKETTS	DDG1010	1H		15	3		18	318	70.00	7.142
21071	BARNETT	DDG1011	1H		15	3		18	318	70.00	7.142
21072	H-B. WILLSON	DDG1012	1H		15	3		18	318	70.00	7.142
21073	MCCORMICK	DDG1013	1H		15	3		18	318	70.00	7.142
21074	TOMERSON	DDG1014	1H		15	3		18	318	70.00	7.142
21075	SAMPSON	DDG1015	1H		15	3		18	318	70.00	7.142

ATTNITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY35	FY86	FY87	FY88	TOTAL	AVG CREW	< 14 MO SERVICE	LOSS DATE (X)
U4677	SELTERS	DDG11	1K	1	2	1	1	4	339	65.00	6-153
U4678	ROBISON	DDG12	1K	1	2	1	1	4	339	65.00	1-1472
U4679	HOEL	DDG13	1K	1	2	1	1	4	339	65.00	12-262
U4680	HUCHANAN	DDG14	1K	1	10	1	1	13	339	106.00	19-999
U4681	HERMLEY	DDG15	1K	1	10	1	1	13	339	92.00	19-987
U4682	STRAUSS	DDG16	1K	1	5	1	1	10	339	92.00	12-479
U4683	CUNNINGHAM	DDG17	1K	1	5	1	1	10	339	92.00	18-144
U4684	SEAMES	DDG18	1K	1	5	1	1	10	339	92.00	10-144
U4685	TATINALL	DDG19	1K	1	5	1	1	10	339	92.00	13-483
U4686	GOLDSBOROUGH	DDG20	1K	1	10	1	1	13	339	92.00	15-294
U4687	COCORAME	DDG21	1K	1	10	1	1	13	339	92.00	2-437
U4688	STODERT	DDG22	1K	1	10	1	1	13	339	92.00	2-437
U4689	STRID	DDG23	1K	1	10	1	1	13	339	92.00	2-437
U4690	WADDELL	DDG24	1K	1	10	1	1	13	339	92.00	2-437
U4691	SPRUANCE	DDG25	1K	1	10	1	1	13	339	92.00	2-437
U4692	P.F. FOSTER	DDG26	1K	1	10	1	1	13	339	92.00	2-437
U4693	KINKAID	DDG27	1K	1	10	1	1	13	339	92.00	2-437
U4694	KEMITT	DDG28	1K	1	10	1	1	13	339	92.00	2-437
U4695	ELLIOTT	DDG29	1K	1	10	1	1	13	339	92.00	2-437
U4696	RADFORD	DDG30	1K	1	10	1	1	13	339	92.00	2-437
U4697	PETERSON	DDG31	1K	1	10	1	1	13	339	92.00	2-437
U4698	CARON	DDG32	1K	1	10	1	1	13	339	92.00	2-437
U4699	RAY	DDG33	1K	1	10	1	1	13	339	92.00	2-437
U4700	OLDENBONE	DDG34	1K	1	10	1	1	13	339	92.00	2-437
U4701	JOHN TOUNG	DDG35	1K	1	10	1	1	13	339	92.00	2-437
U4702	COMT DE GRASSE	DDG36	1K	1	10	1	1	13	339	92.00	2-437
U4703	DEKALB	DDG37	1K	1	10	1	1	13	339	92.00	2-437
U4704	MERRILL	DDG38	1K	1	10	1	1	13	339	92.00	2-437
U4705	BRIEF	DDG39	1K	1	10	1	1	13	339	92.00	2-437
U4706	STUMLEY	DDG40	1K	1	10	1	1	13	339	92.00	2-437
U4707	MOONHUGGER	DDG41	1K	1	10	1	1	13	339	92.00	2-437
U4708	JOHN HANCOCK	DDG42	1K	1	10	1	1	13	339	92.00	2-437
U4709	NICHOLSON	DDG43	1K	1	10	1	1	13	339	92.00	2-437
U4710	LEWIS	DDG44	1K	1	10	1	1	13	339	92.00	2-437
U4711	CUSHING	DDG45	1K	1	10	1	1	13	339	92.00	2-437
U4712	HARRY W. HILL	DDG46	1K	1	10	1	1	13	339	92.00	2-437
U4713	OBAMA	DDG47	1K	1	10	1	1	13	339	92.00	2-437
U4714	THOMAS	DDG48	1K	1	10	1	1	13	339	92.00	2-437
U4715	DEYO	DDG49	1K	1	10	1	1	13	339	92.00	2-437
U4716	INGERSOLL	DDG50	1K	1	10	1	1	13	339	92.00	2-437
U4717	FIFE	DDG51	1K	1	10	1	1	13	339	92.00	2-437
U4718	FLETCHER	DDG52	1K	1	10	1	1	13	339	92.00	2-437
U4719	HAYLEN	DDG53	1K	1	10	1	1	13	339	92.00	2-437
U4720	BROOKS	DDG54	1K	1	10	1	1	13	339	92.00	2-437
U4721	RAMSEY	DDG55	1K	1	10	1	1	13	339	92.00	2-437
U4722	SCHOFFELD	DDG56	1K	1	10	1	1	13	339	92.00	2-437
U4723	TALBOT	DDG57	1K	1	10	1	1	13	339	92.00	2-437
U4724	P.L. PAGE	DDG58	1K	1	10	1	1	13	339	92.00	2-437
U4725	J.A. FURER	DDG59	1K	1	10	1	1	13	339	92.00	2-437
U4726	HEWES	DDG60	1K	1	10	1	1	13	339	92.00	2-437
U4727	BOWEN	DDG61	1K	1	10	1	1	13	339	92.00	2-437

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY95	FY96	FY97	FY98	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
20051	PAUL	FF1080	1N	4	3	5	1	13	270	70.00	12.714
20052	AYLMIN	FF1081	1N	2	3			5	270	57.00	8.771
20053	MONIGGHERY	FF1082	1N	5			1	6	270	50.00	18.519
20054	COOK	FF1083	1N	4				4	270	20.00	17.778
20055	ACCAWILLISS	FF1084	1N					0	270	42.00	16.667
20056	BEARY	FF1085	1N	1				1	270	68.00	18.889
20057	BREYTON	FF1086	1N					0	270	70.00	19.999
20058	KIRK	FF1087	1N	4				4	270	70.00	23.000
20059	BROWN	FF1088	1N	8				8	270	64.00	23.000
20060	AINSWORTH	FF1089	1N	1				1	270	49.00	18.000
20061	WARRIOR	FF1090	1N	1				1	270	70.00	19.000
20062	CAPRANO	FF1091	1N	1				1	270	59.00	17.000
20063	PHARIS	FF1092	1N	2				2	270	57.00	12.260
20064	TRUKET	FF1093	1N	1				1	270	61.00	12.260
20065	MURMESTER	FF1094	1N	1				1	270	46.00	13.543
20066	KNOX	FF1095	1N	1				1	270	68.00	13.543
20067	HEPBURN	FF1096	1N	1				1	270	61.00	13.543
20068	COMMOLE	FF1097	1N	1				1	270	54.00	13.543
20069	MEYERKORD	FF1098	1N	1				1	270	74.00	13.543
20070	W-S-SIMS	FF1099	1N	1				1	270	62.00	13.543
20071	WHITLEY	FF1100	1N	1				1	270	74.00	13.543
20072	REASONER	FF1101	1N	1				1	270	62.00	13.543
20073	LOCUM	FF1102	1N	1				1	270	62.00	13.543
20074	STEVEN SHIELDS	FF1103	1N	1				1	270	62.00	13.543
20075	HAMMOND	FF1104	1N	1				1	270	74.00	13.543
20076	VREGLAND	FF1105	1N	1				1	270	74.00	13.543
20077	BAGLEY	FF1106	1N	1				1	270	74.00	13.543
20078	DOWNS	FF1107	1N	1				1	270	74.00	13.543
20079	BADGER	FF1108	1N	1				1	270	74.00	13.543
20080	PEABY	FF1109	1N	1				1	270	74.00	13.543
20081	H-E-KULT	FF1110	1N	1				1	270	74.00	13.543
20082	TRIMPE	FF1111	1N	1				1	270	74.00	13.543
20083	FAMING	FF1112	1N	1				1	270	74.00	13.543
20084	QUELLET	FF1113	1N	1				1	270	74.00	13.543
20085	GARLEY	FF1114	1N	1				1	270	74.00	13.543
20086	MCDOUGALL	FF1115	1N	1				1	270	74.00	13.543
20087	BRUDSON	FF1116	1N	1				1	270	74.00	13.543
20088	DAVE	FF1117	1N	1				1	270	74.00	13.543
20089	VOGE	FF1118	1N	1				1	270	74.00	13.543
20090	SAMPL	FF1119	1N	1				1	270	74.00	13.543
20091	KUELSCH	FF1120	1N	1				1	270	74.00	13.543
20092	DAVID	FF1121	1N	1				1	270	74.00	13.543
20093	FAMRIAN	FF1122	1N	1				1	270	74.00	13.543
20094	WILLIAM	FF1123	1N	1				1	270	74.00	13.543
20095	COPPLE	FF1124	1N	1				1	270	74.00	13.543
20096	GALLEY	FF1125	1N	1				1	270	74.00	13.543
20097	MCMEYER	FF1126	1N	1				1	270	74.00	13.543
20098	TISDALE	FF1127	1N	1				1	270	74.00	13.543
20099	BOONE	FF1128	1N	1				1	270	74.00	13.543

ATTRITION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY85	FY86	FY87	FY88	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
21054	GROUN	FFG39	10			1		5	195	37.00	13.513
21055	REID	FFG30	10					8	195	49.00	16.320
21059	STARR	FFG31	10					10	195	41.00	26.390
21059	HALL	FFG32	10					4	195	29.00	17.185
21059	JARRITT	FFG33	10				1	7	195	35.00	28.271
21059	FITCH	FFG34	10				2	10	195	42.00	11.363
21103	UNDERWOOD	FFG37	10					3	195	49.00	20.564
21103	CROMBIE	FFG38	10					2	195	39.00	13.063
21105	CURT	FFG39	10					1	195	46.00	19.999
21106	DUYLI	FFG39	10					1	195	50.00	19.999
21107	MALYURION	FFG40	10					0	195	50.00	19.999
21107	MCCLELLAN	FFG41	10					0	195	50.00	19.999
21109	KLAFFING	FFG42	10					1	195	50.00	19.999
21110	THALOTT	FFG43	10					3	195	50.00	19.999
21117	DEWITT	FFG45	10					6	195	50.00	19.999
21198	NICHOLAS	FFG47	10					0	195	50.00	19.999
21200	NICHOLAS	FFG48	10					0	195	50.00	19.999
21201	VANDERGRIFT	FFG49	10					0	195	50.00	19.999
21231	HRAVATY	FFG50	10					0	195	50.00	19.999
21231	TAYLOR	FFG51	10					0	195	50.00	19.999
21233	GARY	FFG52	10					0	195	50.00	19.999
21233	CARF	FFG53	10					0	195	50.00	19.999
21233	NAME	FFG54	10					0	195	50.00	19.999
21233	FORD	FFG55	10					0	195	50.00	19.999
21233	ELRUL	FFG56	10					0	195	50.00	19.999
21233	SIMPSON	FFG57	10					0	195	50.00	19.999
21233	NAME	FFG58	10					0	195	50.00	19.999
21233	NAME	FFG59	10					0	195	50.00	19.999
21233	NAME	FFG60	10					0	195	50.00	19.999
21233	NAME	FFG61	10					0	195	50.00	19.999
21233	NAME	FFG62	10					0	195	50.00	19.999
21233	NAME	FFG63	10					0	195	50.00	19.999
21233	NAME	FFG64	10					0	195	50.00	19.999
21233	NAME	FFG65	10					0	195	50.00	19.999
21233	NAME	FFG66	10					0	195	50.00	19.999
21233	NAME	FFG67	10					0	195	50.00	19.999
21233	NAME	FFG68	10					0	195	50.00	19.999
21233	NAME	FFG69	10					0	195	50.00	19.999
21233	NAME	FFG70	10					0	195	50.00	19.999
21233	NAME	FFG71	10					0	195	50.00	19.999
21233	NAME	FFG72	10					0	195	50.00	19.999
21233	NAME	FFG73	10					0	195	50.00	19.999
21233	NAME	FFG74	10					0	195	50.00	19.999
21233	NAME	FFG75	10					0	195	50.00	19.999
21233	NAME	FFG76	10					0	195	50.00	19.999
21233	NAME	FFG77	10					0	195	50.00	19.999
21233	NAME	FFG78	10					0	195	50.00	19.999
21233	NAME	FFG79	10					0	195	50.00	19.999
21233	NAME	FFG80	10					0	195	50.00	19.999
21233	NAME	FFG81	10					0	195	50.00	19.999
21233	NAME	FFG82	10					0	195	50.00	19.999
21233	NAME	FFG83	10					0	195	50.00	19.999
21233	NAME	FFG84	10					0	195	50.00	19.999
21233	NAME	FFG85	10					0	195	50.00	19.999
21233	NAME	FFG86	10					0	195	50.00	19.999
21233	NAME	FFG87	10					0	195	50.00	19.999
21233	NAME	FFG88	10					0	195	50.00	19.999
21233	NAME	FFG89	10					0	195	50.00	19.999
21233	NAME	FFG90	10					0	195	50.00	19.999
21233	NAME	FFG91	10					0	195	50.00	19.999
21233	NAME	FFG92	10					0	195	50.00	19.999
21233	NAME	FFG93	10					0	195	50.00	19.999
21233	NAME	FFG94	10					0	195	50.00	19.999
21233	NAME	FFG95	10					0	195	50.00	19.999
21233	NAME	FFG96	10					0	195	50.00	19.999
21233	NAME	FFG97	10					0	195	50.00	19.999
21233	NAME	FFG98	10					0	195	50.00	19.999
21233	NAME	FFG99	10					0	195	50.00	19.999
21233	NAME	FFG100	10					0	195	50.00	19.999
21233	NAME	FFG101	10					0	195	50.00	19.999
21233	NAME	FFG102	10					0	195	50.00	19.999
21233	NAME	FFG103	10					0	195	50.00	19.999
21233	NAME	FFG104	10					0	195	50.00	19.999
21233	NAME	FFG105	10					0	195	50.00	19.999
21233	NAME	FFG106	10					0	195	50.00	19.999
21233	NAME	FFG107	10					0	195	50.00	19.999
21233	NAME	FFG108	10					0	195	50.00	19.999
21233	NAME	FFG109	10					0	195	50.00	19.999
21233	NAME	FFG110	10					0	195	50.00	19.999
21233	NAME	FFG111	10					0	195	50.00	19.999
21233	NAME	FFG112	10					0	195	50.00	19.999
21233	NAME	FFG113	10					0	195	50.00	19.999
21233	NAME	FFG114	10					0	195	50.00	19.999
21233	NAME	FFG115	10					0	195	50.00	19.999
21233	NAME	FFG116	10					0	195	50.00	19.999
21233	NAME	FFG117	10					0	195	50.00	19.999
21233	NAME	FFG118	10					0	195	50.00	19.999
21233	NAME	FFG119	10					0	195	50.00	19.999
21233	NAME	FFG120	10					0	195	50.00	19.999
21233	NAME	FFG121	10					0	195	50.00	19.999
21233	NAME	FFG122	10					0	195	50.00	19.999
21233	NAME	FFG123	10					0	195	50.00	19.999
21233	NAME	FFG124	10					0	195	50.00	19.999
21233	NAME	FFG125	10					0	195	50.00	19.999
21233	NAME	FFG126	10					0	195	50.00	19.999
21233	NAME	FFG127	10					0	195	50.00	19.999
21233	NAME	FFG128	10					0	195	50.00	19.999
21233	NAME	FFG129	10					0	195	50.00	19.999
21233	NAME	FFG130	10					0	195	50.00	19.999
21233	NAME	FFG131	10					0	195	50.00	19.999
21233	NAME	FFG132	10					0	195	50.00	19.999
21233	NAME	FFG133	10					0	195	50.00	19.999
21233	NAME	FFG134	10					0	195	50.00	19.999
21233	NAME	FFG135	10					0	195	50.00	19.999
21233	NAME	FFG136	10					0	195	50.00	19.999
21233	NAME	FFG137	10					0	195	50.00	19.999
21233	NAME	FFG138	10					0	195	50.00	19.999
21233	NAME	FFG139	10					0	195	50.00	19.999
21233	NAME	FFG140	10					0	195	50.00	19.999
21233	NAME	FFG141	10					0	195	50.00	19.999
21233	NAME	FFG142	10					0	195	50.00	19.999
21233	NAME	FFG143	10					0	195	50.00	19.999
21233	NAME	FFG144	10					0	195	50.00	19.999
21233	NAME	FFG145	10					0	195	50.00	19.999
21233	NAME	FFG146	10					0	195	50.00	19.999
21233	NAME	FFG147	10					0	195	50.00	19.999
21233	NAME	FFG148	10					0	195	50.00	19.999
21233	NAME	FFG149	10					0	195	50.00	19.999
21233	NAME	FFG150	10					0	195	50.00	19.999
21233	NAME	FFG151	10					0	195	50.00	19.999
21233	NAME	FFG152	10					0	195	50.00	19.999
21233	NAME	FFG153	10					0	195	50.00	19.999
21233	NAME	FFG154	10					0	195	50.00	19.999
21233	NAME	FFG155	10					0	195	50.00	19.999
21233	NAME	FFG156	10					0	195	50.00	19.999
21233	NAME	FFG157	10					0	195	50.00	19.999
21233	NAME	FFG158	10					0	195	50.00	19.999
21233	NAME	FFG159	10					0	195	50.00	19.999
21233	NAME	FFG160	10					0	195	50.00	19.999
21233	NAME	FFG161	10					0	195	50.00	19.999
21233	NAME	FFG162	10					0	195	50.00	19.999
21233	NAME	FFG163	10					0	195	50.00	19.999
21233	NAME	FFG164	10					0	195	50.00	19.999
21233	NAME	FFG165	10					0	195	50.00	19.999
21233	NAME	FFG166	10					0	195	50.00	19.999
21233	NAME	FFG167	10					0	195	50.00	19.999
21233	NAME	FFG168	10					0	195	50.00	19.999
21233	NAME	FFG169									

ATTITION RATE BY CAT/CLASS

UIC	SNIP NAME	MULL NO	CAT/CLASS	FY85	FY86	FY87	FY88	TOTAL	AVG CREM	< 34 MO SERVICE	LOSS RATE (X)
20019	MANITOWOC	LST11180	2F	2	4	4		10	241	77.00	12.987
20020	SUMTER	LST11181	2F	2	11	5		25	241	75.00	12.987
20021	FRESNO	LST11182	2F	2	10	3		15	241	01.00	12.987
20022	PEORIA	LST11183	2F	2	5	3		10	241	02.00	12.987
20023	FREDERICK	LST11184	2F	2	10	3	2	17	241	01.00	12.987
20024	SCHENECTADY	LST11185	2F	2	10	3		17	241	01.00	12.987
20025	CAYUGA	LST11186	2F	2	10	3		17	241	01.00	12.987
20026	TUSCALOOSA	LST11187	2F	2	10	3		17	241	01.00	12.987
20027	SAGINAW	LST11188	2F	2	10	3	1	16	241	01.00	12.987
20028	SAN BERNARDINO	LST11189	2F	2	10	3		16	241	01.00	12.987
20029	BOULDER	LST11190	2F	2	10	3	2	17	241	01.00	12.987
20030	PACIFIC	LST11191	2F	2	10	3		16	241	01.00	12.987
20031	SPARTANBURG CTY	LST11192	2F	2	10	3	2	17	241	01.00	12.987
20032	FAIRFAX CTY	LST11193	2F	2	10	3		16	241	01.00	12.987
20033	LAMAR CTY	LST11194	2F	2	10	3		16	241	01.00	12.987
20034	BARBOUR CTY	LST11195	2F	2	10	3		16	241	01.00	12.987
20035	HARLAN CTY	LST11196	2F	2	10	3		16	241	01.00	12.987
20036	HARMSTABLE CTY	LST11197	2F	2	10	3		16	241	01.00	12.987
20037	BRIAR CTY	LST11198	2F	2	10	3		16	241	01.00	12.987
20038	NEWPORT	LST11199	2F	2	10	3		16	241	01.00	12.987
20039	BLUE RIDGE	LST11200	2F	2	10	3		16	241	01.00	12.987
20040	MOUNT WHITNEY	LST11201	2F	2	10	3	1	17	241	01.00	12.987
20041	SURABACH	LST11202	2F	2	10	3		16	241	01.00	12.987
20042	MAUNA KAA	LST11203	2F	2	10	3		16	241	01.00	12.987
20043	WALEKALA	LST11204	2F	2	10	3		16	241	01.00	12.987
20044	NITRO	LST11205	2F	2	10	3		16	241	01.00	12.987
20045	PYRO	LST11206	2F	2	10	3		16	241	01.00	12.987
20046	BUTTE	LST11207	2F	2	10	3		16	241	01.00	12.987
20047	SANTA BARBARA	LST11208	2F	2	10	3		16	241	01.00	12.987
20048	MOUNT HOOD	LST11209	2F	2	10	3		16	241	01.00	12.987
20049	FLINT	LST11210	2F	2	10	3		16	241	01.00	12.987
20050	SHASTA	LST11211	2F	2	10	3		16	241	01.00	12.987
20051	MOUNT BAKER	LST11212	2F	2	10	3		16	241	01.00	12.987
20052	KISKA	LST11213	2F	2	10	3		16	241	01.00	12.987
20053	MARSA	LST11214	2F	2	10	3		16	241	01.00	12.987
20054	NIAGARA FALLS	LST11215	2F	2	10	3		16	241	01.00	12.987
20055	WHITE PLAINS	LST11216	2F	2	10	3		16	241	01.00	12.987
20056	CONCORD	LST11217	2F	2	10	3		16	241	01.00	12.987
20057	SAN DIEGO	LST11218	2F	2	10	3		16	241	01.00	12.987
20058	SAN JUAN	LST11219	2F	2	10	3		16	241	01.00	12.987
20059	ST. LOUIS	LST11220	2F	2	10	3		16	241	01.00	12.987
20060	ALBUQUERQUE	LST11221	2F	2	10	3		16	241	01.00	12.987
20061	CAMARON	LST11222	2F	2	10	3		16	241	01.00	12.987
20062	MONROVIA	LST11223	2F	2	10	3		16	241	01.00	12.987
20063	MERRILL	LST11224	2F	2	10	3		16	241	01.00	12.987
20064	WILLIAMETTE	LST11225	2F	2	10	3		16	241	01.00	12.987
20065	PLATTE	LST11226	2F	2	10	3		16	241	01.00	12.987
20066	SACRAMENTO	LST11227	2F	2	10	3		16	241	01.00	12.987
20067	CAMDEN	LST11228	2F	2	10	3		16	241	01.00	12.987
20068	SEATTLE	LST11229	2F	2	10	3		16	241	01.00	12.987
20069	DETROIT	LST11230	2F	2	10	3		16	241	01.00	12.987
20070	WITCHITA	LST11231	2F	2	10	3		16	241	01.00	12.987

ATTENTION RATE BY CAT/CLASS

UIC	SHIP NAME	HULL NO	CAT/CLASS	FY85	FY86	FY87	FY88	TOTAL	AVG CREW	< 34 MO SERVICE	LOSS RATE (%)
US650	MILWAUKEE	A092	3M	2	12	0	1	21	442	116.00	18.103
01122	KANSAS CITY	A093	3M	7	20	0	1	28	442	130.00	26.153
21133	SAVANNAH	A094	3M	1	14	0	2	15	442	127.00	30.959
21134	WABASH	A095	3M	1	27	0	1	29	442	129.00	30.457
21135	ROANOK	A096	3M	1	7	0	1	9	442	129.00	30.457
21136	KALAMAZOO	A097	3M	1	2	0	1	4	442	107.00	14.583
07453	CONSTITANT	M50427	4A	1	2	0	1	4	56	114.00	28.571
07457	ENHAYLE	M50433	4A	1	1	0	1	3	56	9.00	8.000
07468	ESTERH	M50438	4A	1	1	0	1	3	56	9.00	33.333
07469	EXCELSIOR	M50439	4A	1	1	0	1	3	56	9.00	11.111
07470	EXPLORANT	M50440	4A	1	1	0	1	3	56	13.00	7.692
07471	FEARLESS	M50441	4A	1	1	0	1	3	56	10.00	19.047
07472	FORTIFYING	M50442	4A	1	2	0	1	4	56	12.00	23.000
07473	IMPLICIT	M50443	4A	1	1	0	1	3	56	13.00	23.000
07474	IMPLICIT	M50444	4A	1	1	0	1	3	56	9.00	14.285
07475	IMPLICIT	M50445	4A	1	1	0	1	3	56	9.00	14.285
07476	IMPLICIT	M50446	4A	1	1	0	1	3	56	12.00	15.384
07477	IMPLICIT	M50447	4A	1	1	0	1	3	56	11.00	12.500
07478	IMPLICIT	M50448	4A	1	1	0	1	3	56	9.00	27.000
07479	IMPLICIT	M50449	4A	1	1	0	1	3	56	11.00	27.000
07480	IMPLICIT	M50450	4A	1	1	0	1	3	56	11.00	27.000
07481	IMPLICIT	M50451	4A	1	1	0	1	3	56	11.00	27.000
07482	IMPLICIT	M50452	4A	1	1	0	1	3	56	11.00	27.000
07483	IMPLICIT	M50453	4A	1	1	0	1	3	56	11.00	27.000
07484	IMPLICIT	M50454	4A	1	1	0	1	3	56	11.00	27.000
07485	IMPLICIT	M50455	4A	1	1	0	1	3	56	11.00	27.000
07486	IMPLICIT	M50456	4A	1	1	0	1	3	56	11.00	27.000
07487	IMPLICIT	M50457	4A	1	1	0	1	3	56	11.00	27.000
07488	IMPLICIT	M50458	4A	1	1	0	1	3	56	11.00	27.000
07489	IMPLICIT	M50459	4A	1	1	0	1	3	56	11.00	27.000
07490	IMPLICIT	M50460	4A	1	1	0	1	3	56	11.00	27.000
07491	IMPLICIT	M50461	4A	1	1	0	1	3	56	11.00	27.000
07492	IMPLICIT	M50462	4A	1	1	0	1	3	56	11.00	27.000
07493	IMPLICIT	M50463	4A	1	1	0	1	3	56	11.00	27.000
07494	IMPLICIT	M50464	4A	1	1	0	1	3	56	11.00	27.000
07495	IMPLICIT	M50465	4A	1	1	0	1	3	56	11.00	27.000
07496	IMPLICIT	M50466	4A	1	1	0	1	3	56	11.00	27.000
07497	IMPLICIT	M50467	4A	1	1	0	1	3	56	11.00	27.000
07498	IMPLICIT	M50468	4A	1	1	0	1	3	56	11.00	27.000
07499	IMPLICIT	M50469	4A	1	1	0	1	3	56	11.00	27.000
07500	IMPLICIT	M50470	4A	1	1	0	1	3	56	11.00	27.000
07501	IMPLICIT	M50471	4A	1	1	0	1	3	56	11.00	27.000
07502	IMPLICIT	M50472	4A	1	1	0	1	3	56	11.00	27.000
07503	IMPLICIT	M50473	4A	1	1	0	1	3	56	11.00	27.000
07504	IMPLICIT	M50474	4A	1	1	0	1	3	56	11.00	27.000
07505	IMPLICIT	M50475	4A	1	1	0	1	3	56	11.00	27.000
07506	IMPLICIT	M50476	4A	1	1	0	1	3	56	11.00	27.000
07507	IMPLICIT	M50477	4A	1	1	0	1	3	56	11.00	27.000
07508	IMPLICIT	M50478	4A	1	1	0	1	3	56	11.00	27.000
07509	IMPLICIT	M50479	4A	1	1	0	1	3	56	11.00	27.000
07510	IMPLICIT	M50480	4A	1	1	0	1	3	56	11.00	27.000
07511	IMPLICIT	M50481	4A	1	1	0	1	3	56	11.00	27.000
07512	IMPLICIT	M50482	4A	1	1	0	1	3	56	11.00	27.000
07513	IMPLICIT	M50483	4A	1	1	0	1	3	56	11.00	27.000
07514	IMPLICIT	M50484	4A	1	1	0	1	3	56	11.00	27.000
07515	IMPLICIT	M50485	4A	1	1	0	1	3	56	11.00	27.000
07516	IMPLICIT	M50486	4A	1	1	0	1	3	56	11.00	27.000
07517	IMPLICIT	M50487	4A	1	1	0	1	3	56	11.00	27.000
07518	IMPLICIT	M50488	4A	1	1	0	1	3	56	11.00	27.000
07519	IMPLICIT	M50489	4A	1	1	0	1	3	56	11.00	27.000
07520	IMPLICIT	M50490	4A	1	1	0	1	3	56	11.00	27.000
07521	IMPLICIT	M50491	4A	1	1	0	1	3	56	11.00	27.000
07522	IMPLICIT	M50492	4A	1	1	0	1	3	56	11.00	27.000
07523	IMPLICIT	M50493	4A	1	1	0	1	3	56	11.00	27.000
07524	IMPLICIT	M50494	4A	1	1	0	1	3	56	11.00	27.000
07525	IMPLICIT	M50495	4A	1	1	0	1	3	56	11.00	27.000
07526	IMPLICIT	M50496	4A	1	1	0	1	3	56	11.00	27.000
07527	IMPLICIT	M50497	4A	1	1	0	1	3	56	11.00	27.000
07528	IMPLICIT	M50498	4A	1	1	0	1	3	56	11.00	27.000
07529	IMPLICIT	M50499	4A	1	1	0	1	3	56	11.00	27.000
07530	IMPLICIT	M50500	4A	1	1	0	1	3	56	11.00	27.000
07531	IMPLICIT	M50501	4A	1	1	0	1	3	56	11.00	27.000
07532	IMPLICIT	M50502	4A	1	1	0	1	3	56	11.00	27.000
07533	IMPLICIT	M50503	4A	1	1	0	1	3	56	11.00	27.000
07534	IMPLICIT	M50504	4A	1	1	0	1	3	56	11.00	27.000
07535	IMPLICIT	M50505	4A	1	1	0	1	3	56	11.00	27.000
07536	IMPLICIT	M50506	4A	1	1	0	1	3	56	11.00	27.000
07537	IMPLICIT	M50507	4A	1	1	0	1	3	56	11.00	27.000
07538	IMPLICIT	M50508	4A	1	1	0	1	3	56	11.00	27.000
07539	IMPLICIT	M50509	4A	1	1	0	1	3	56	11.00	27.000
07540	IMPLICIT	M50510	4A	1	1	0	1	3	56	11.00	27.000
07541	IMPLICIT	M50511	4A	1	1	0	1	3	56	11.00	27.000
07542	IMPLICIT	M50512	4A	1	1	0	1	3	56	11.00	27.000
07543	IMPLICIT	M50513	4A	1	1	0	1	3	56	11.00	27.000
07544	IMPLICIT	M50514	4A	1	1	0	1	3	56	11.00	27.000
07545	IMPLICIT	M50515	4A	1	1	0	1	3	56	11.00	27.000
07546	IMPLICIT	M50516	4A	1	1	0	1	3	56	11.00	27.000
07547	IMPLICIT	M50517	4A	1	1	0	1	3	56	11.00	27.000
07548	IMPLICIT	M50518	4A	1	1	0	1	3	56	11.00	27.000
07549	IMPLICIT	M50519	4A	1	1	0	1	3	56	11.00	27.000
07550	IMPLICIT	M50520	4A	1	1	0	1	3	56	11.00	27.000
07551	IMPLICIT	M50521	4A	1	1	0	1	3	56	11.00	27.000
07552	IMPLICIT	M50522	4A	1	1	0	1	3	56	11.00	27.000
07553	IMPLICIT	M50523	4A	1	1	0	1	3	56	11.00	27.000
07554	IMPLICIT	M50524	4A	1	1	0	1	3	56	11.00	27.000
07555	IMPLICIT	M50525	4A	1	1	0	1	3	56	11.00	27.000
07556	IMPLICIT	M50526	4A	1	1	0	1	3	56	11.00	27.000
07557	IMPLICIT	M50527	4A	1	1	0	1	3	56	11.00	27.000
07558	IMPLICIT	M50528	4A	1	1	0	1	3	56	11.00	27.000
07559	IMPLICIT	M50529	4A	1	1	0	1	3	56	11.00	27.000
07560	IMPLICIT	M50530	4A	1	1	0	1	3	56	11.00	27.000
07561	IMPLICIT	M50531	4A	1	1	0	1	3	56	11.00	27.000
07562	IMPLICIT	M50532	4A	1	1	0	1	3	56	11.00	27.000
07563	IMPLICIT	M50533	4A	1	1	0	1	3	56	11.00	27.000
07564	IMPLICIT	M50534	4A	1	1	0	1	3	56	11.00	27.000
07565	IMPLICIT	M50535	4A	1	1	0	1	3	56	11.00	27.000
07566	IMPLICIT	M50536	4A	1	1	0	1	3	56	11.00	27.000
07567	IMPLICIT	M50537	4A	1	1	0	1	3	56	11.00	27.000
07568	IMPLICIT	M50538	4A	1	1	0	1	3	56	11.00	27.000
07569	IMPLICIT	M50539	4A	1	1	0	1				

APPENDIX C
LOSS RATES BY SHIP CLASS

NO SHIPS IN CLASS	CAT/CLASS	FY77	FY78	FY79	FYRU	TOTAL	AUG CREW	SJ4 SERVICE	NU	AUG LOSS	AUG RATE (%)
003	1A	11	24	11	3	49	39	00	00	12.23	19.039
002	1B	17	25	10		53	39	00	00	12.23	19.039
001	1C	27	25	13		69	39	00	00	12.23	19.039
001	1D	27	25	13		69	39	00	00	12.23	19.039
001	1E	27	25	13		69	39	00	00	12.23	19.039
001	1F	27	25	13		69	39	00	00	12.23	19.039
001	1G	27	25	13		69	39	00	00	12.23	19.039
001	1H	27	25	13		69	39	00	00	12.23	19.039
001	1I	27	25	13		69	39	00	00	12.23	19.039
001	1J	27	25	13		69	39	00	00	12.23	19.039
001	1K	27	25	13		69	39	00	00	12.23	19.039
001	1L	27	25	13		69	39	00	00	12.23	19.039
001	1M	27	25	13		69	39	00	00	12.23	19.039
001	1N	27	25	13		69	39	00	00	12.23	19.039
001	1O	27	25	13		69	39	00	00	12.23	19.039
001	1P	27	25	13		69	39	00	00	12.23	19.039
001	1Q	27	25	13		69	39	00	00	12.23	19.039
001	1R	27	25	13		69	39	00	00	12.23	19.039
001	1S	27	25	13		69	39	00	00	12.23	19.039
001	1T	27	25	13		69	39	00	00	12.23	19.039
001	1U	27	25	13		69	39	00	00	12.23	19.039
001	1V	27	25	13		69	39	00	00	12.23	19.039
001	1W	27	25	13		69	39	00	00	12.23	19.039
001	1X	27	25	13		69	39	00	00	12.23	19.039
001	1Y	27	25	13		69	39	00	00	12.23	19.039
001	1Z	27	25	13		69	39	00	00	12.23	19.039
001	2A	27	25	13		69	39	00	00	12.23	19.039
001	2B	27	25	13		69	39	00	00	12.23	19.039
001	2C	27	25	13		69	39	00	00	12.23	19.039
001	2D	27	25	13		69	39	00	00	12.23	19.039
001	2E	27	25	13		69	39	00	00	12.23	19.039
001	2F	27	25	13		69	39	00	00	12.23	19.039
001	2G	27	25	13		69	39	00	00	12.23	19.039
001	2H	27	25	13		69	39	00	00	12.23	19.039
001	2I	27	25	13		69	39	00	00	12.23	19.039
001	2J	27	25	13		69	39	00	00	12.23	19.039
001	2K	27	25	13		69	39	00	00	12.23	19.039
001	2L	27	25	13		69	39	00	00	12.23	19.039
001	2M	27	25	13		69	39	00	00	12.23	19.039
001	2N	27	25	13		69	39	00	00	12.23	19.039
001	2O	27	25	13		69	39	00	00	12.23	19.039
001	2P	27	25	13		69	39	00	00	12.23	19.039
001	2Q	27	25	13		69	39	00	00	12.23	19.039
001	2R	27	25	13		69	39	00	00	12.23	19.039
001	2S	27	25	13		69	39	00	00	12.23	19.039
001	2T	27	25	13		69	39	00	00	12.23	19.039
001	2U	27	25	13		69	39	00	00	12.23	19.039
001	2V	27	25	13		69	39	00	00	12.23	19.039
001	2W	27	25	13		69	39	00	00	12.23	19.039
001	2X	27	25	13		69	39	00	00	12.23	19.039
001	2Y	27	25	13		69	39	00	00	12.23	19.039
001	2Z	27	25	13		69	39	00	00	12.23	19.039
001	3A	27	25	13		69	39	00	00	12.23	19.039
001	3B	27	25	13		69	39	00	00	12.23	19.039
001	3C	27	25	13		69	39	00	00	12.23	19.039
001	3D	27	25	13		69	39	00	00	12.23	19.039
001	3E	27	25	13		69	39	00	00	12.23	19.039
001	3F	27	25	13		69	39	00	00	12.23	19.039
001	3G	27	25	13		69	39	00	00	12.23	19.039
001	3H	27	25	13		69	39	00	00	12.23	19.039
001	3I	27	25	13		69	39	00	00	12.23	19.039
001	3J	27	25	13		69	39	00	00	12.23	19.039
001	3K	27	25	13		69	39	00	00	12.23	19.039
001	3L	27	25	13		69	39	00	00	12.23	19.039
001	3M	27	25	13		69	39	00	00	12.23	19.039
001	3N	27	25	13		69	39	00	00	12.23	19.039
001	3O	27	25	13		69	39	00	00	12.23	19.039
001	3P	27	25	13		69	39	00	00	12.23	19.039
001	3Q	27	25	13		69	39	00	00	12.23	19.039
001	3R	27	25	13		69	39	00	00	12.23	19.039
001	3S	27	25	13		69	39	00	00	12.23	19.039
001	3T	27	25	13		69	39	00	00	12.23	19.039
001	3U	27	25	13		69	39	00	00	12.23	19.039
001	3V	27	25	13		69	39	00	00	12.23	19.039
001	3W	27	25	13		69	39	00	00	12.23	19.039
001	3X	27	25	13		69	39	00	00	12.23	19.039
001	3Y	27	25	13		69	39	00	00	12.23	19.039
001	3Z	27	25	13		69	39	00	00	12.23	19.039
001	4A	27	25	13		69	39	00	00	12.23	19.039
001	4B	27	25	13		69	39	00	00	12.23	19.039
001	4C	27	25	13		69	39	00	00	12.23	19.039
001	4D	27	25	13		69	39	00	00	12.23	19.039
001	4E	27	25	13		69	39	00	00	12.23	19.039
001	4F	27	25	13		69	39	00	00	12.23	19.039
001	4G	27	25	13		69	39	00	00	12.23	19.039
001	4H	27	25	13		69	39	00	00	12.23	19.039
001	4I	27	25	13		69	39	00	00	12.23	19.039
001	4J	27	25	13		69	39	00	00	12.23	19.039
001	4K	27	25	13		69	39	00	00	12.23	19.039
001	4L	27	25	13		69	39	00	00	12.23	19.039
001	4M	27	25	13		69	39	00	00	12.23	19.039
001	4N	27	25	13		69	39	00	00	12.23	19.039
001	4O	27	25	13		69	39	00	00	12.23	19.039
001	4P	27	25	13		69	39	00	00	12.23	19.039
001	4Q	27	25	13		69	39	00	00	12.23	19.039
001	4R	27	25	13		69	39	00	00	12.23	19.039
001	4S	27	25	13		69	39	00	00	12.23	19.039
001	4T	27	25	13		69	39	00	00	12.23	19.039
001	4U	27	25	13		69	39	00	00	12.23	19.039
001	4V	27	25	13		69	39	00	00	12.23	19.039
001	4W	27	25	13		69	39	00	00	12.23	19.039
001	4X	27	25	13		69	39	00	00	12.23	19.039
001	4Y	27	25	13		69	39	00	00	12.23	19.039
001	4Z	27	25	13		69	39	00	00	12.23	19.039
001	5A	27	25	13		69	39	00	00	12.23	19.039
001	5B	27	25	13		69	39	00	00	12.23	19.039
001	5C	27	25	13		69	39	00	00	12.23	19.039
001	5D	27	25	13		69	39	00	00	12.23	19.039
001	5E	27	25	13		69	39	00	00	12.23	19.039
001	5F	27	25	13		69	39	00	00	12.23	19.039
001	5G	27	25	13		69	39	00	00	12.23	19.039
001	5H	27	25	13		69	39	00	00	12.23	19.039
001	5I	27	25	13		69	39	00	00	12.23	19.039
001	5J	27	25	13		69	39	00	00	12.23	19.039
001	5K	27	25	13		69	39	00	00	12.23	19.039
001	5L	27	25	13		69	39	00	00	12.23	19.039
001	5M	27	25	13		69	39	00	00	12.23	19.039
001	5N	27	25	13		69	39	00	00	12.23	19.039
001	5O	27	25	13		69	39	00	00	12.23	19.039
001	5P	27	25	13		69	39	00	00	12.23	19.039
001	5Q	27	25	13		69	39	00	00	12.23	19.039
001	5R	27	25	13		69	39	00	00	12.23	19.039
001	5S	27	25	13		69	39	00	00	12.23	19.039
001	5T	27	25	13		69	39	00	00	12.23	19.039
001	5U	27	25	13		69	39	00	00	12.23	19.039
001	5V	27	25	13		69	39	00	00	12.23	19.039
001	5W	27	25	13		69	39	00	00	12.23	19.039
001	5X	27	25	13		69	39	00	00	12.23	19.039
001	5Y	27	25	13		69	39	00	00	12.23	19.039
001	5Z	27	25	13		69	39	00	00	12.23	19.039
001	6A	27	25	13		69	39	00	00	12.23	19.039
001	6B	27	25	13		69	39	00	00	12.23	19.039

ATTRITION RATE BY SHIPS CLASS

NO SHIPS IN CLASS	CAT/CLASS	FY81	FY82	FY83	FY84	TOTAL	AVG CREW SIZE	< 34 MO SERVICE	AVG LOSS RATE (%)
004	1A	14	22	25	5	67	339	492.00	13.41
002	1B	7	10	10	1	27	370	280.00	11.25
001	1C	5	5	1	2	13	366	157.00	11.49
001	1D	3	17	13	1	23	230	137.00	12.18
009	1E	3	9	3	1	16	111	111.00	12.00
004	1F	3	10	13	14	208	398	466.00	18.89
010	1G	2	13	13	1	29	318	109.00	19.02
023	1H	4	12	17	18	41	339	229.00	18.13
030	1I	2	10	11	16	39	222	254.00	12.63
036	1J	3	10	11	13	37	254	254.00	12.70
030	1K	1	23	15	24	63	403	650.00	11.04
043	1L	2	4	3	0	9	406	406.00	10.48
043	1M	2	8	10	1	21	372	372.00	10.48
043	1N	2	12	11	20	45	400	372.00	10.48
053	1O	1	3	12	5	21	350	327.00	11.01
053	1P	1	1	13	5	20	323	327.00	11.01
002	2A	1	14	2	18	35	271	501.00	20.20
022	2B	1	14	2	5	22	347	454.00	20.20
022	2C	1	14	2	5	22	347	454.00	20.20
022	2D	1	14	2	5	22	347	454.00	20.20
022	2E	1	14	2	5	22	347	454.00	20.20
022	2F	1	14	2	5	22	347	454.00	20.20
022	2G	1	14	2	5	22	347	454.00	20.20
022	2H	1	14	2	5	22	347	454.00	20.20
022	2I	1	14	2	5	22	347	454.00	20.20
022	2J	1	14	2	5	22	347	454.00	20.20
022	2K	1	14	2	5	22	347	454.00	20.20
022	2L	1	14	2	5	22	347	454.00	20.20
022	2M	1	14	2	5	22	347	454.00	20.20
022	2N	1	14	2	5	22	347	454.00	20.20
022	2O	1	14	2	5	22	347	454.00	20.20
022	2P	1	14	2	5	22	347	454.00	20.20
022	2Q	1	14	2	5	22	347	454.00	20.20
022	2R	1	14	2	5	22	347	454.00	20.20
022	2S	1	14	2	5	22	347	454.00	20.20
022	2T	1	14	2	5	22	347	454.00	20.20
022	2U	1	14	2	5	22	347	454.00	20.20
022	2V	1	14	2	5	22	347	454.00	20.20
022	2W	1	14	2	5	22	347	454.00	20.20
022	2X	1	14	2	5	22	347	454.00	20.20
022	2Y	1	14	2	5	22	347	454.00	20.20
022	2Z	1	14	2	5	22	347	454.00	20.20
022	3A	1	14	2	5	22	347	454.00	20.20
022	3B	1	14	2	5	22	347	454.00	20.20
022	3C	1	14	2	5	22	347	454.00	20.20
022	3D	1	14	2	5	22	347	454.00	20.20
022	3E	1	14	2	5	22	347	454.00	20.20
022	3F	1	14	2	5	22	347	454.00	20.20
022	3G	1	14	2	5	22	347	454.00	20.20
022	3H	1	14	2	5	22	347	454.00	20.20
022	3I	1	14	2	5	22	347	454.00	20.20
022	3J	1	14	2	5	22	347	454.00	20.20
022	3K	1	14	2	5	22	347	454.00	20.20
022	3L	1	14	2	5	22	347	454.00	20.20
022	3M	1	14	2	5	22	347	454.00	20.20
022	3N	1	14	2	5	22	347	454.00	20.20
022	3O	1	14	2	5	22	347	454.00	20.20
022	3P	1	14	2	5	22	347	454.00	20.20
022	3Q	1	14	2	5	22	347	454.00	20.20
022	3R	1	14	2	5	22	347	454.00	20.20
022	3S	1	14	2	5	22	347	454.00	20.20
022	3T	1	14	2	5	22	347	454.00	20.20
022	3U	1	14	2	5	22	347	454.00	20.20
022	3V	1	14	2	5	22	347	454.00	20.20
022	3W	1	14	2	5	22	347	454.00	20.20
022	3X	1	14	2	5	22	347	454.00	20.20
022	3Y	1	14	2	5	22	347	454.00	20.20
022	3Z	1	14	2	5	22	347	454.00	20.20
022	4A	1	14	2	5	22	347	454.00	20.20
022	4B	1	14	2	5	22	347	454.00	20.20
022	4C	1	14	2	5	22	347	454.00	20.20
022	4D	1	14	2	5	22	347	454.00	20.20
022	4E	1	14	2	5	22	347	454.00	20.20
022	4F	1	14	2	5	22	347	454.00	20.20
022	4G	1	14	2	5	22	347	454.00	20.20
022	4H	1	14	2	5	22	347	454.00	20.20
022	4I	1	14	2	5	22	347	454.00	20.20
022	4J	1	14	2	5	22	347	454.00	20.20
022	4K	1	14	2	5	22	347	454.00	20.20
022	4L	1	14	2	5	22	347	454.00	20.20
022	4M	1	14	2	5	22	347	454.00	20.20
022	4N	1	14	2	5	22	347	454.00	20.20
022	4O	1	14	2	5	22	347	454.00	20.20
022	4P	1	14	2	5	22	347	454.00	20.20
022	4Q	1	14	2	5	22	347	454.00	20.20
022	4R	1	14	2	5	22	347	454.00	20.20
022	4S	1	14	2	5	22	347	454.00	20.20
022	4T	1	14	2	5	22	347	454.00	20.20
022	4U	1	14	2	5	22	347	454.00	20.20
022	4V	1	14	2	5	22	347	454.00	20.20
022	4W	1	14	2	5	22	347	454.00	20.20
022	4X	1	14	2	5	22	347	454.00	20.20
022	4Y	1	14	2	5	22	347	454.00	20.20
022	4Z	1	14	2	5	22	347	454.00	20.20
022	5A	1	14	2	5	22	347	454.00	20.20
022	5B	1	14	2	5	22	347	454.00	20.20
022	5C	1	14	2	5	22	347	454.00	20.20
022	5D	1	14	2	5	22	347	454.00	20.20
022	5E	1	14	2	5	22	347	454.00	20.20
022	5F	1	14	2	5	22	347	454.00	20.20
022	5G	1	14	2	5	22	347	454.00	20.20
022	5H	1	14	2	5	22	347	454.00	20.20
022	5I	1	14	2	5	22	347	454.00	20.20
022	5J	1	14	2	5	22	347	454.00	20.20
022	5K	1	14	2	5	22	347	454.00	20.20
022	5L	1	14	2	5	22	347	454.00	20.20
022	5M	1	14	2	5	22	347	454.00	20.20
022	5N	1	14	2	5	22	347	454.00	20.20
022	5O	1	14	2	5	22	347	454.00	20.20
022	5P	1	14	2	5	22	347	454.00	20.20
022	5Q	1	14	2	5	22	347	454.00	20.20
022	5R	1	14	2	5	22	347	454.00	20.20
022	5S	1	14	2	5	22	347	454.00	20.20
022	5T	1	14	2	5	22	347	454.00	20.20
022	5U	1	14	2	5	22	347	454.00	20.20
022	5V	1	14	2	5	22	347	454.00	20.20
022	5W	1	14	2	5	22	347	454.00	20.20
022	5X	1	14	2	5	22	347	454.00	20.20
022	5Y	1	14	2	5	22	347	454.00	20.20
022	5Z	1	14	2	5	22	347	454.00	20.20
022	6A	1	14	2	5	22	347	454.00	20.20
022	6B	1	14	2	5	22	347	454.00	20.20
022	6C	1	14	2	5	22	347	454.00	20.20
022	6D	1	14	2	5	22	347	454.00	20.20
022	6E	1	14	2	5	22	347	454.00	20.20
022	6F	1	14	2	5	22	347	454.00	20.20
022	6G	1	14	2	5	22	347	454.00	20.20
022	6H	1	14	2	5	22	347	454.00	20.20
022	6I	1	14	2	5	22	347	454.00	20.20
022	6J	1	14	2	5	22	347	454.00	20.20
022	6K	1	14	2	5	22	347	454.00	20.20
022	6L	1	14	2	5	22	347	454.00	20.20
022	6M	1	14	2	5	22	347	454.00	20.20
022	6N	1	14	2	5	22	347	454.00	20.20
022	6O	1	14	2	5	22	347	454.00	20.20
022	6P	1	14	2	5	22	347	454.00	20.20
022	6Q	1	14	2	5	22	347	454.00	20.20
022	6R	1	14	2	5	22	347	454.00	20.20
022	6S	1	14	2	5	22	347	454.00	20.20
022	6T	1	14	2	5	22	347	454.00	20.20
022	6U	1	14	2	5	22	347	454.00	20.20
022	6V	1	14	2	5	22	347	454.00	20.20
022	6W	1	14	2	5	22	347	454.00	20.20
022	6X	1	14	2	5	22	347	454.00	20.20
022	6Y	1	14	2	5	22	347	454.00	20.20
022	6Z	1	14	2	5	22	347	454.00	20.20
022	7A	1	14	2	5	22	347	454.00	20.20
022	7B	1	14	2	5	22	347	454.00	20.20
022	7C	1	14	2	5				

ATTRITION RATE BY SHIPS CLASS

NO SHIPS IN CLASS	CAT/CLASS	FV85	FV87	FVR8	TOTAL	AVG CREW SIZE	< 34 MO SERVICE	AVG LOS RATE (X)
004	1A	8	10	2	49	339	515.00	8.15
002	1B	2	9	1	21	379	267.00	10.48
001	1C	3	4	1	15	364	158.00	10.48
001	1D	9	6	3	25	326	227.00	12.54
006	1E	2	5	1	10	340	225.00	12.54
004	1F	2	7	5	19	318	233.00	12.54
010	1G	2	4	1	30	339	226.00	12.54
023	1H	3	7	6	28	330	242.00	12.54
031	1J	3	9	11	35	334	304.00	12.54
030	1K	8	10	9	35	270	349.00	12.54
030	1L	8	7	3	30	265	351.00	12.54
035	1M	9	5	6	42	250	356.00	12.54
035	1N	9	7	2	29	244	367.00	12.54
000	2A	1	2	1	7	400	267.00	12.54
000	2B	1	3	1	7	322	292.00	12.54
000	2C	1	1	1	2	322	292.00	12.54
000	2D	5	2	5	23	322	292.00	12.54
000	2E	1	4	1	13	340	303.00	12.54
000	2F	1	1	2	13	330	303.00	12.54
000	2G	1	3	1	13	330	303.00	12.54
000	2H	1	3	1	13	330	303.00	12.54
000	2I	1	3	1	13	330	303.00	12.54
000	2J	1	3	1	13	330	303.00	12.54
000	2K	1	3	1	13	330	303.00	12.54
000	2L	1	3	1	13	330	303.00	12.54
000	2M	1	3	1	13	330	303.00	12.54
000	2N	1	3	1	13	330	303.00	12.54
000	2O	1	3	1	13	330	303.00	12.54
000	2P	1	3	1	13	330	303.00	12.54
000	2Q	1	3	1	13	330	303.00	12.54
000	2R	1	3	1	13	330	303.00	12.54
000	2S	1	3	1	13	330	303.00	12.54
000	2T	1	3	1	13	330	303.00	12.54
000	2U	1	3	1	13	330	303.00	12.54
000	2V	1	3	1	13	330	303.00	12.54
000	2W	1	3	1	13	330	303.00	12.54
000	2X	1	3	1	13	330	303.00	12.54
000	2Y	1	3	1	13	330	303.00	12.54
000	2Z	1	3	1	13	330	303.00	12.54
300	TOTALS	612	937	97	3407	343	247062.00	14.154

APPENDIX D

LOSS RATES BY RATING (OCCUPATION)

[illegible]

[illegible]

LUSS BY RATING							
SHIPS CATEGORY = 2							
RATING	AVG NO ON BOARD	FY77	FY78	FY79	FY80	TOTAL	LOSS RATE
UNK	109.0	0	5	1	0	6	5.50
TOTALS	5,990	358	575	304	70	1,308	21.83

RATING	NO ON BOARD	AVG	FY77	FY78	FY79	FY80	TOTAL	LOSS RATE
AA	2	0	0	0	1	0	1	50.00
AA	2	0	0	0	0	0	0	0.00
AA	1	0	0	0	0	0	0	5.88
AA	1	0	0	0	0	0	0	11.22
AA	1	0	0	0	0	0	0	23.42
AA	1	0	0	0	0	0	0	21.42
AA	1	0	0	0	0	0	0	14.28
AA	1	0	0	0	0	0	0	24.00
AA	2	0	0	0	0	0	0	24.74
AA	2	0	0	0	0	0	0	31.31
AA	2	0	0	0	0	0	0	9.04
AA	2	0	0	0	0	0	0	7.14
AA	2	0	0	0	0	0	0	12.34
AA	2	0	0	0	0	0	0	24.22
AA	2	0	0	0	0	0	0	4.00
AA	2	0	0	0	0	0	0	8.33
AA	2	0	0	0	0	0	0	11.76
AA	2	0	0	0	0	0	0	15.45
AA	2	0	0	0	0	0	0	19.55
AA	2	0	0	0	0	0	0	14.28
AA	2	0	0	0	0	0	0	23.95
AA	2	0	0	0	0	0	0	15.38
AA	2	0	0	0	0	0	0	17.09
AA	2	0	0	0	0	0	0	11.76
AA	2	0	0	0	0	0	0	14.28
AA	2	0	0	0	0	0	0	27.04
AA	2	0	0	0	0	0	0	15.11
AA	2	0	0	0	0	0	0	10.12
AA	2	0	0	0	0	0	0	21.07
AA	2	0	0	0	0	0	0	24.04
AA	2	0	0	0	0	0	0	14.00
AA	2	0	0	0	0	0	0	14.34
AA	2	0	0	0	0	0	0	22.23
AA	2	0	0	0	0	0	0	1.098

LOSS BY RATING SHIPS CATEGORY = 4							
RATING	AVG NO ON BOARD	FY77	FY78	FY79	FY80	TOTAL	LOSS RATE
AR	0.0	0	0	1	0	1	00
EM	18.0	0	1	1	0	2	11.11
EN	25.0	0	2	0	0	2	11.69
FA	21.0	0	0	2	0	2	28.57
FM	0.0	0	0	1	0	1	33.33
FR	6.0	0	1	1	0	2	50.00
GMG	1.0	0	0	0	0	0	44.44
HT	9.0	0	1	0	0	1	00
IC	4.0	0	1	0	0	1	00
MS	10.0	0	1	0	0	1	12.50
OS	6.0	1	0	0	0	1	16.66
PM	5.0	0	0	0	0	0	00
RM	15.0	0	1	0	0	1	14.28
SA	5.0	0	0	0	0	0	13.33
SN	22.0	0	0	0	0	0	40.00
SR	27.0	0	0	0	0	0	11.11
UNK	19.0	0	0	0	0	0	19.08
TOTALS		2	22	8	3	35	

LUSS BY RATING
SHIPS CATEGORY = 5

RATING	AVG NO ON BOARD	FY77	FY78	FY79	FY80	TOTAL	LOSS RATE
AK	00	1	0	0	0	1	16.00
BM	50	0	0	0	0	0	15.00
BT	82	0	0	0	0	0	4.00
DK	10	0	0	0	0	0	9.00
DR	21	0	0	0	0	0	12.04
DT	10	0	0	0	0	0	32.32
EM	40	1	1	1	1	4	24.61
FA	198	12	3	2	1	16	30.32
FAR	277	2	0	0	0	2	7.00
FTG	33	0	0	0	0	0	25.00
GRG	1	0	0	0	0	0	33.00
GRY	40	0	0	0	0	0	10.42
HA	1	0	0	0	0	0	5.88
HN	1	0	0	0	0	0	19.00
HR	2	0	0	0	0	0	10.26
HT	49	0	0	0	0	0	12.28
IC	34	0	0	0	0	0	10.00
IM	17	0	0	0	0	0	12.00
JO	5	0	0	0	0	0	2.00
JL	30	0	0	0	0	0	2.00
LM	130	0	0	0	0	0	2.00
MX	101	0	0	0	0	0	2.00
WZ	28	0	0	0	0	0	2.00
OM	1	0	0	0	0	0	2.00
OP	8	0	0	0	0	0	2.00
PR	12	0	0	0	0	0	2.00
RA	30	0	0	0	0	0	2.00
RM	3	0	0	0	0	0	2.00
RS	20	0	0	0	0	0	2.00
SA	22	0	0	0	0	0	2.00
SK	6	0	0	0	0	0	2.00
SN	3	0	0	0	0	0	2.00
SG	10	0	0	0	0	0	2.00
STG	22	0	0	0	0	0	2.00
SYN	4	0	0	0	0	0	2.00
YN	17	0	0	0	0	0	2.00
UNK	9	0	0	0	0	0	2.00
TOTALS	2,604	114	236	128	22	500	19.20

LOSS BY RATING				SHIPS CATEGORY = 1			
RATING	AVG NO ON BOARD	FY81	FY82	FY83	FY84	TOTAL	LOSS RATE
SN	574.0	23	41	50	4	118	20.55
SR	1,714.0	116	245	144	36	541	31.56
STS	581.0	14	35	34	3	86	14.80
TM	89.0	0	0	0	0	0	.00
YN	89.0	1	5	4	0	11	12.35
UNK	160.0	5	15	6	2	28	17.49
TOTALS	13,784	490	1,094	759	117	2,460	17.84

LOSS BY RATING
SHIPS CATEGORY = 2

RATING	AVG NO ON BOARD	FY81	FY82	FY83	FY84	TOTAL	LOSS RATE
AA	17.0	1	2	1	3	7	23.52
ABF	13.0	1	0	0	0	1	11.00
ABH	12.0	1	0	0	0	1	11.00
AU	10.0	1	0	0	0	1	11.00
AMS	38.0	2	0	0	0	2	28.94
AN	32.0	1	0	0	0	1	33.33
ASE	23.0	1	0	0	0	1	33.33
ASH	10.0	1	0	0	0	1	19.99
BT	10.0	1	0	0	0	1	26.00
CTR	1.0	1	0	0	0	1	19.99
CKM	2.0	1	0	0	0	1	19.99
DM	2.0	1	0	0	0	1	19.99
DDR	12.0	1	0	0	0	1	17.44
DEM	26.0	1	0	0	0	1	17.44
ENT	4.0	1	0	0	0	1	13.75
FA	4.0	1	0	0	0	1	13.75
FEN	4.0	1	0	0	0	1	12.42
FRB	2.0	1	0	0	0	1	12.42
FTM	2.0	1	0	0	0	1	10.00
GMH	2.0	1	0	0	0	1	10.00
HA	2.0	1	0	0	0	1	17.85
HM	2.0	1	0	0	0	1	10.00
HT	2.0	1	0	0	0	1	10.00
HTS	1.0	1	0	0	0	1	9.33
IS	1.0	1	0	0	0	1	9.33
JO	1.0	1	0	0	0	1	14.28
JM	1.0	1	0	0	0	1	10.00
MS	3.0	1	0	0	0	1	18.00
OS	2.0	1	0	0	0	1	13.78
PC	2.0	1	0	0	0	1	13.78
PH	1.0	1	0	0	0	1	18.57
PM	1.0	1	0	0	0	1	17.99
PP	1.0	1	0	0	0	1	20.30
RM	1.0	1	0	0	0	1	13.67
SA	1.0	1	0	0	0	1	13.67
SH	1.0	1	0	0	0	1	9.99
SK	1.0	1	0	0	0	1	11.11
SM	1.0	1	0	0	0	1	11.11
SS	1.0	1	0	0	0	1	20.33
SSN	1.0	1	0	0	0	1	20.33
SSN	1.0	1	0	0	0	1	18.70
SSN	1.0	1	0	0	0	1	18.70
SSN	1.0	1	0	0	0	1	17.90

RATING	AVG NO ON BOARD	FY 91	FY 92	FY 93	FY 94	TOTAL	LOSS RATE
SR	705.0	01	116	63	18	258	39.59
STS	3.0	0	1	0	0	1	33.33
TM	2.0	0	1	0	0	1	50.00
YN	85.0	1	7	2	0	11	13.41
UNK	5.0	0	0	0	0	0	22.00
TOTALS	4,828	212	489	308	55	1,064	22.03

LOSS BY RATING							
SHIPS CATEGORY = 3							
RATING	AVG NO ON BOARD	FY81	FY82	FY83	FY84	TOTAL	LOSS RATE
AA	2.0	0	0	0	0	0	00
AK	4.0	0	0	0	0	0	25.00
AM	3.0	0	0	0	0	0	00
AN	1.0	0	0	0	0	0	00
AR	124.0	1	1	0	0	2	18.18
AS	1.0	0	0	0	0	0	20.00
BT	14.0	0	0	0	0	0	00
CC	31.0	0	0	0	0	0	00
CD	1.0	0	0	0	0	0	6.45
DE	110.0	0	0	0	0	0	00
DF	52.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	9.36
EH	150.0	0	0	0	0	0	23.99
EI	62.0	0	0	0	0	0	00
EA	250.0	0	0	0	0	0	00
EB	327.0	0	0	0	0	0	15.59
EC	16.0	0	0	0	0	0	21.21
ED	4.0	0	0	0	0	0	30.28
EE	12.0	0	0	0	0	0	14.00
EF	16.0	0	0	0	0	0	35.58
EG	5.0	0	0	0	0	0	39.00
EH	14.0	0	0	0	0	0	00
EI	12.0	0	0	0	0	0	16.00
EA	118.0	0	0	0	0	0	19.10
EB	319.0	0	0	0	0	0	12.77
EC	111.0	0	0	0	0	0	17.61
ED	114.0	0	0	0	0	0	19.09
EE	30.0	0	0	0	0	0	17.75
EF	103.0	0	0	0	0	0	18.42
EG	60.0	0	0	0	0	0	3.33
EH	51.0	0	0	0	0	0	5.00
EI	80.0	0	0	0	0	0	8.00
EA	60.0	0	0	0	0	0	22.11
EB	82.0	0	0	0	0	0	10.86
EC	1.0	0	0	0	0	0	13.33
ED	39.0	0	0	0	0	0	19.11
EE	7.0	0	0	0	0	0	14.00
EF	4.162	0	0	0	0	0	33.00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	25.00
EA	1.0	0	0	0	0	0	22.22
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00
EE	1.0	0	0	0	0	0	00
EF	1.0	0	0	0	0	0	00
EG	1.0	0	0	0	0	0	00
EH	1.0	0	0	0	0	0	00
EI	1.0	0	0	0	0	0	00
EA	1.0	0	0	0	0	0	00
EB	1.0	0	0	0	0	0	00
EC	1.0	0	0	0	0	0	00
ED	1.0	0	0	0	0	0	00

LOSS BY RATING							
SHIPS CATEGORY = 4							
RATING	AVG NO ON BOARD	FY81	FY82	FY83	FY84	TOTAL	LOSS RATE
RM	3.0	0	0	1	0	1	33.33
RM	14.0	0	0	1	0	1	5.12
RM	39.0	0	1	0	0	1	14.28
RM	7.0	0	0	1	0	1	17.64
RM	17.0	0	0	1	0	1	11.11
RM	7.0	0	1	0	0	1	28.57
RM	9.0	0	1	0	0	1	16.66
RM	10.0	0	1	0	0	1	100.00
RM	11.0	0	1	0	0	1	36.36
RM	11.0	0	1	0	0	1	100.00
RM	23.0	0	1	0	0	1	100.00
RM	1.0	0	0	1	0	1	21.73
RM	3.0	0	0	1	0	1	45.45
RM	11.0	0	1	0	0	1	11.53
RM	26.0	0	1	0	0	1	11.66
RM	1.0	0	0	1	0	1	100.00
RM	21.0	0	0	1	0	1	17.20
TOTALS	215	19	19	16	1	37	

LOSS BY RATING
SHIPS CATEGORY = 5

RATING	AVG NO ON BOARD	FY81	FY82	FY83	FY84	TOTAL	LOSS RATE
AA	2	0	0	0	0	0	00
AN	1	0	0	0	0	0	00
AT	1	0	0	0	0	0	00
BT	5	0	0	2	0	2	22
DK	1	0	0	2	0	2	25
DM	1	0	0	0	0	0	00
DP	5	0	0	3	0	3	20
DS	8	0	0	1	0	1	00
EN	9	0	0	2	0	2	58
ET	3	0	0	2	0	2	87
FA	3	0	0	2	0	2	26
FN	6	0	0	2	0	2	66
FR	3	0	0	2	0	2	16
FT	3	0	0	0	0	0	00
FG	1	0	0	0	0	0	00
GMT	1	0	0	0	0	0	00
GSM	1	0	0	0	0	0	00
HN	1	0	0	0	0	0	00
HR	1	0	0	0	0	0	00
HT	3	0	0	0	0	0	22
TC	3	0	0	0	0	0	00
IN	2	0	0	0	0	0	26
JO	1	0	0	0	0	0	00
JI	3	0	0	0	0	0	14
LI	3	0	0	0	0	0	00
ML	2	0	0	0	0	0	33
MM	3	0	0	0	0	0	33
MS	2	0	0	0	0	0	97
MO	2	0	0	0	0	0	36
OS	1	0	0	0	0	0	33
PC	1	0	0	0	0	0	06
PH	1	0	0	0	0	0	00
PM	1	0	0	0	0	0	48
PN	3	0	0	0	0	0	00
QM	3	0	0	0	0	0	11
RP	3	0	0	0	0	0	00
SA	2	0	0	0	0	0	57
SH	2	0	0	0	0	0	00
SK	2	0	0	0	0	0	13
SM	2	0	0	0	0	0	14
SN	2	0	0	0	0	0	09
SR	2	0	0	0	0	0	00
ST	3	0	0	0	0	0	25
TM	2	0	0	0	0	0	00
YK	2	0	0	0	0	0	00
TOTALS	2,750	94	207	150	40	471	17.12

RATING	Avg NO ON BOARD	FY85	FY90	FY97	FY88	TOTAL	LOSS RATE
AA	1	C	C	J	J	00	.00
AA	12	C	C	J	J	00	.00
AA	1	C	C	J	J	00	.00
AT	36	1	1	1	1	20	16.00
BT	33	C	C	J	J	00	.00
BUE	1	C	C	J	J	00	.00
CCM	1	C	C	J	J	00	.00
CRO	3	C	C	J	J	00	.00
CIRT	3	C	C	J	J	00	.00
DDK	6	C	C	J	J	00	.00
DOR	1	C	C	J	J	00	.00
EENT	1	C	C	J	J	00	.00
EMT	1	C	C	J	J	00	.00
EW	1	C	C	J	J	00	.00
FCN	1	C	C	J	J	00	.00
FRG	1	C	C	J	J	00	.00
FTMG	1	C	C	J	J	00	.00
GHE	1	C	C	J	J	00	.00
GHE	1	C	C	J	J	00	.00
GSE	1	C	C	J	J	00	.00
GSM	1	C	C	J	J	00	.00
HMH	1	C	C	J	J	00	.00
HHI	1	C	C	J	J	00	.00
IJC	1	C	C	J	J	00	.00
JHMS	1	C	C	J	J	00	.00
KS	1	C	C	J	J	00	.00
OJA	1	C	C	J	J	00	.00
PAN	1	C	C	J	J	00	.00
PCN	1	C	C	J	J	00	.00
PHR	1	C	C	J	J	00	.00
RLA	1	C	C	J	J	00	.00
SHS	1	C	C	J	J	00	.00
SMS	1	C	C	J	J	00	.00
SKS	1	C	C	J	J	00	.00
ST	1	C	C	J	J	00	.00

LOSS BY RATING							
SHIPS CATEGORY = 1							
RATING	AVG NO ON BOARD	FY85	FY86	FY87	FY88	TOTAL	LOSS RATE
STS	4.0	0	0	0	0	0	7.00
TM	65.0	0	1	2	2	5	7.69
YM	131.0	4	5	0	0	15	11.45
UNK	25.0	0	0	0	0	0	11.00
TOTALS	147.076	331	895	494	52	1,772	12.58

[illegible]

LOSS BY RATING							
SHIPS CATEGORY = 2							
RATING	AVG NO ON BOARD	FY85	FY86	FY87	FY88	TOTAL	LOSS RATE
YN	49.0	1	4	4	0	9	18.36
UNK	5.0	0	0	0	0	0	16.99
TOTALS	4.338	132	377	202	16	727	16.73

LOSS BY RATING
SHIPS CATEGORY = 3

RATING	AVG NO ON BOARD	FY85	FY86	FY87	FY88	TOTAL	LOSS RATE
AD	1.00	0	0	0	0	0	0.00
AK	1.00	0	0	0	0	0	0.00
AN	1.00	0	0	0	0	0	0.00
AR	21.00	0	0	0	0	0	0.00
BM	99.00	0	0	0	0	0	0.00
BT	1.00	0	0	0	0	0	0.00
CT	1.00	0	0	0	0	0	0.00
CTT	1.00	0	0	0	0	0	0.00
DK	1.00	0	0	0	0	0	0.00
DP	1.00	0	0	0	0	0	0.00
DR	1.00	0	0	0	0	0	0.00
DS	99.00	0	0	0	0	0	0.00
DE	15.00	0	0	0	0	0	0.00
EM	15.00	0	0	0	0	0	0.00
ET	15.00	0	0	0	0	0	0.00
EW	15.00	0	0	0	0	0	0.00
FA	15.00	0	0	0	0	0	0.00
FC	15.00	0	0	0	0	0	0.00
FN	15.00	0	0	0	0	0	0.00
FR	15.00	0	0	0	0	0	0.00
FRG	10.00	0	0	0	0	0	0.00
FT	10.00	0	0	0	0	0	0.00
FTM	10.00	0	0	0	0	0	0.00
GM	10.00	0	0	0	0	0	0.00
GMM	10.00	0	0	0	0	0	0.00
GMT	10.00	0	0	0	0	0	0.00
HA	10.00	0	0	0	0	0	0.00
HM	10.00	0	0	0	0	0	0.00
HN	10.00	0	0	0	0	0	0.00
HK	10.00	0	0	0	0	0	0.00
HT	10.00	0	0	0	0	0	0.00
IC	15.00	0	0	0	0	0	0.00
ICJ	15.00	0	0	0	0	0	0.00
IL	15.00	0	0	0	0	0	0.00
LM	18.00	0	0	0	0	0	0.00
LMK	18.00	0	0	0	0	0	0.00
OS	99.00	0	0	0	0	0	0.00
OS	99.00	0	0	0	0	0	0.00
PC	99.00	0	0	0	0	0	0.00
PC	99.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
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PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0	0.00
PM	21.00	0	0	0	0	0</	

LOSS BY RATING
SHIPS CATEGORY = 4

RATING	AVG ON BOARD	FY85	FY86	FY87	FY88	TOTAL	LOSS RATE
HM	3.0	0	0	0	0	0	14:28
EM	14.0	0	0	0	0	0	5:55
ET	30.0	0	0	0	0	0	25:00
FA	8.0	0	0	0	0	0	16:50
FM	11.0	0	0	0	0	0	300:00
FT	11.0	0	0	0	0	0	9:09
HT	3.0	0	0	0	0	0	12:50
IC	11.0	0	0	0	0	0	17:85
MS	1.0	0	0	0	0	0	11:11
OS	1.0	0	0	0	0	0	30:76
QM	8.0	0	0	0	0	0	16:20
RM	20.0	0	0	0	0	0	
SA	9.0	0	0	0	0	0	
SK	20.0	0	0	0	0	0	
SM	17.0	0	0	0	0	0	
STG	17.0	0	0	0	0	0	
TOTALS		10	10	10	1	29	

APPENDIX E
LOSSES BY REASONS

ATTRITION RATE BY REASON
SHIPS CATEGORY = 1

REASONS FOR LOSS	FY77	FY78	FY79	FY80	TOTAL
011	0	47	31	1	80
015	7	21	15	1	44
019	25	35	0	1	61
022	3	10	3		16
032	10	27	15		52
060	14	28	48	4	94
061	11	78	33	6	128
063	3	3			6
064	3	4	13		20
065	124	104	172	13	413
066	11	57	22	1	91
067	1				1
068	1				1
069	1				1
070	5	1	10	2	18
071		12	10		22
072		2	1		3
073		4	1		5
074		6	1		7
075		1	1		2
076		40	13	3	56
077		1			1
078		95	32	23	150
080		2	2		4
082		71	28	2	101
089		62	22	1	85
091		2			2
092		1			1
093		4	2		6
094		1	1		2
095		1	10		11
096		36		2	38
099					
TOTALS	047	1,060	517	86	2,330

ATTRITION RATE BY REASON
SHIP'S CATEGORY = 2

REASONS FOR LOSS	FY77	FY78	FY79	FY80	TOTAL
011	7	17	17	2	43
012	0	1	4	1	6
013	0	7	2		9
014	0	9	1		10
015	0	7			7
016	4	1	5		10
017	85	12	15	4	117
018	70	57	17	5	153
019	1	0			1
020	1	2			3
021	75	5	10		90
022		192	128	14	407
023	11	36	12	1	60
024	1	1	5		7
025	5	3	12	20	47
026	14	5	2	4	25
027	12	10	3		25
028	12	45	1	16	74
029	19	3	22	1	54
030	23	34	20	1	78
031	2	17	11	1	31
032	1	14	5		20
033		1	1		2
034	10	1	1		12
035		11	8		19
036	10	11			21
037					1
038					1
039					1
040					1
TOTALS	353	576	304	70	1,308

ATTRITION RATE BY REASON

SHIPS CATEGORY = 3

REASONS FOR LOSS	NUMBER OF LOSSES				TOTAL
	FY77	FY78	FY79	FY80	
011	5	17	11	1	35
012	3	1	10	1	15
013	5	10	2		18
014	5	2	2		9
015		6			6
016		1			1
017	4	3	9	4	15
018	63	91	27		181
019	89	58	5		152
020	1	2	1		4
021	2	142	82	11	257
022	41	25	10	3	80
023	2	1	12	9	24
024	5	4	1		10
025	9	4	6		19
026		16	1		17
027	10	1	19	21	51
028	14	49	23	1	87
029	22	35	7	2	66
030	1	21	5	1	28
031		18	1		19
032		1	1		2
033		2			2
034	7	13	3	1	23
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TOTALS	305	497	239	57	1,098

ATTRITION RATE BY REASON

SHIPS CATEGORY = 4

REASONS FOR LOSS	NUMBER OF LOSSES				TOTAL
	FY77	FY78	FY79	FY80	
U11	1	1			1
U16		1			1
U32	4	4			8
U60		7	1		8
U61		2	3		5
U63		1			1
U71		1		1	2
U73		1			1
U76		2	1	2	5
U78		2	1		3
U82			1		1
U86		1			1
U91					
U99					
TOTALS	5	22	8	3	38

ATTRITION RATE BY REASON

SHIPS CATEGORY = 5

REASONS FOR LOSS	NUMBER OF LOSSES				TOTAL
	FY77	FY78	FY79	FY80	
U11	1	0	1		1
U13	4	6	1		11
U16		4	1		5
U22	1	2	2		5
U22	2	3	1		6
U61	10	29	2		41
U61	10	13	2		25
U65	23	34	3		60
U67	3	14	5		22
U68		1	3		4
U71	1	6	1		8
U73		2	3		5
U74	4	2	1		7
U76	5	3	2		10
U78		19	1		20
U80		11	8		19
U82	10	14	3		27
U86	1	17	3		21
U91	1	1	1		3
U93		2	2		4
U99	4				4
TOTALS	114	236	128	22	500

ATTRITION RATE BY REASON

SHIPS CATEGORY = 1

REASONS FOR LOSS	FY61	FY62	FY63	FY64	TOTAL
U011	3	16	20	1	40
U013	3	12	10	2	28
U019	3	15	10		28
U022	4	8	7		19
U033	12	13	7	1	33
U060	43	64	19	1	127
U061	44	18	5		67
U063	1				1
U064	3	12	8		23
U065	75	33	200	21	329
U066			2		2
U067	12	113	171	23	319
U068	1	1			2
U070	1	1		1	3
U071	1	6	8		15
U072	3	8	2	44	57
U073	0	7	1	1	9
U074	42	33	24	3	102
U078		20	18		38
U080	85	62	45	2	194
U082			18		18
U083			45	2	47
U084	120	320	39	30	479
U086	2	5	2		9
U091	1	7	1		9
U092					1
U093					2
U099	32	42	22	5	101
U101	22	16			38
TOTALS	490	1,044	759	117	2,410

ATTRITION RATE BY REASON

SHIPS CATEGORY = 2

REASONS FOR LOSS	NUMBER OF LOSSES				FY84	TOTAL
	FY81	FY82	FY83	FY84		
011	2	5	2			9
013		1	2			3
015		1	1			2
021	1	4	5			10
032		1				1
033		7	3			10
069	0	2	3			5
081	13	28	3			44
084	1	8	1			10
085	1	6	2			9
087	4	14	7	12		35
071	2	4	2	7		15
073	1	6	3	1		11
074	2	7	3	2		14
078	4	4	8			16
082	14	32	23			69
083	28		18			46
084		166	5			171
086	59		1			60
091	1		1			2
096	19	20	1			40
099	14	12	7			33
101				7		7
TOTALS	212	489	503	55		1,064

ATTRITION RATE BY REASON

SHIPS CATEGORY = 3

REASONS FOR LOSS	NUMBER OF LOSSES				FY84	TOTAL
	FY81	FY82	FY83			
U11	1	1	4		1	6
U13	1	2	1			2
U16	1	2	3			6
U22	1					1
U31	1					1
U33	5	1	1			7
U35			2			2
U60	2	32	4			60
U61	3	4	7			14
U64	1	110	68		11	183
U65	2	54	67		9	134
U67	5				1	6
U71			27		21	48
U73	3	1				4
U74	2					2
U76	15	12	4		3	34
U79	4	12	11			27
U80		1				1
U82	2	19	14		1	36
U83			11			11
U84			7		5	12
U89	49	146	18			213
U91	9	13	1			23
U99	8	8	0		6	22
101						1
TOTALS	191	429	258		57	925

ATTRITION RATE BY REASON

SHIPS CATEGORY = 4

REASONS FOR LOSS	NUMBER OF LOSSES				TOTAL
	FY81	FY82	FY83	FY84	
U60		4			4
U61		1			1
U64		1	1		2
U65		2	5		7
U67		3	6		9
U76		1		1	2
U82	1		2		3
U83		4	1		5
U86	1	2	1		4
U99					
TOTALS	2	18	16	1	37

ATTRITION RATE BY REASON

SHIPS CATEGORY = 5

REASONS FOR LOSS	NUMBER OF LOSSES				FY84	TOTAL
	FY81	FY82	FY83	FY84		
011	1	3	3			6
013	3	4	3			8
032		1				4
033	5	13	6			22
060						2
061	1		5			6
064	1	53	32	6		93
065	1	17	35	1		55
067						1
070	1	2				3
071	1	1	8	8		18
073		1				1
074		13	7			20
079	9	13	3	1		25
078		1				1
080	11	4	10			25
082			4			4
083			10			10
084	30	34	8	3		75
089	0	1	1			2
099	0	6	4			10
101	9					9
TOTALS	94	207	150	20		471

ATTRITION RATE BY REASON

SHIPS CATEGORY = 1

REASONS FOR LOSS	FY85	FY86	FY87	FY88	TOTAL
011	1	17	18	2	38
012	9	9	7	1	26
013	5	13	2	2	25
014		20	7		27
015		2	1		3
016	9	5	2	1	17
017	26	38	19		83
018		1	1		2
019	5	15	5		25
020	58	210	153	14	435
021	60	246	137	19	502
022	27	7	2	1	37
023	27	3	7	2	39
024	21	6	3		30
025	27	28	8	3	66
026	1	5	11	5	22
027	1				1
028	1				1
029	4	5	3		12
030	20	1	3		24
031	33	101	60	9	209
032	9	5	3		17
033		2	1		3
034	1	4	1		6
035	2	1	1		4
036					
037					
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TOTALS	331	895	494	52	1,772

ATTRITION RATE BY REASON
SHIPS CATEGORY = 2

REASONS FOR LOSS	FY85	FY86	FY87	FY88	TOTAL
011	1	7	12	1	20
013	4	5	3		9
016		7			7
017		2			2
022		1			1
037	10	5	4	2	28
060		11	7		18
064	31	1	1	4	44
065	10	14	7	1	32
067	1	10	4		25
071		1	1		2
072		1	1		2
073	5	2			7
074	9	13	8	3	33
076	4	3	4	1	12
078					
080	4	4			8
082	6		1		7
083	8	44		1	53
084	8	5	18		31
086	8				8
087	1				1
090	1	3			4
091		1			1
096		1			1
097	31	29	21	3	84
101					
TOTALS	132	377	202	16	727

ATTRITION RATE BY REASON

SHIPS CATEGORY = 3

REASONS FOR LOSS	NUMBER OF LOSSES				TOTAL
	FY65	FY86	FY87	FY88	
011	1	13	9		20
013	1	5	3		9
016		1			1
017		5	2		7
022	2	3			5
030	7	1	6	1	20
060		5	1		6
065	25	110	73	4	209
067	25	117	29	2	173
071	1	1			2
073	5	12	5		22
074	5	13	3		21
078	8	4	3		25
080	1	1	1		3
083	14	38	15		67
084	1	3			4
087	1				1
091	2				2
097		1			1
099	1	43	12	2	58
101	20				20
TOTALS	113	376	165	11	670

ATTRITION RATE BY REASON

SHIPS CATEGORY = 4

REASONS FOR LOSS	FY85	FY86	FY87	FY88	TOTAL
-----	----	----	----	----	-----
011			2		2
022	1				1
060	1				1
065	1	1	4		6
067		5	2	1	8
084	1		2		3
086	5	2			7
101					
TOTALS	10	3	10	1	29

ATTENTION RATE BY REASON

SHIPS CATEGORY = >

REASONS FOR LOSS	FY85	NUMBER OF LOSSES		FY88	TOTAL
		FY86	FY87		
U11	1	2	6		8
U13	1	2			3
U19	1				2
U22	1				1
U32	2	1	1	1	4
U64		2			2
U65	3	25	13	1	43
U67	4	48	21	1	76
U71					1
U73		1			2
U74	1	1			2
U76		5	2	1	8
U78		3	1		4
U82	3	12	15		30
U84		1			1
U86	1		1		2
U91	5	8	6	1	20
U97					1
101					1
TOTALS	21	115	66	7	209

LIST OF REFERENCES

1. U.S. Government Printing Office. The Costs of Defense Manpower: Issues for 1977, Washington, D.C.: Congressional Budget Office, January 1977.
2. Cooper, R.V. Military Manpower and the All-Volunteer Force, Rand Corporation, Santa Monica, California, September 1977.
3. Bowman, W., Little, R., and G.T. Sicilia. The All-Volunteer Force After a Decade: Retrospect and Prospect, Pergamon-Brassey's International Defense Publishers, McLean, Virginia, 1986.
4. Elster, R.S. and Flyer, E.S. First Term Attrition Among Non-Prior Service Enlisted Personnel: Loss Probabilities Based on Selected Entry Factors, Naval Postgraduate School, Monterey, California, June 1983.
5. Eitelberg, M.J. American Demographic Trends and National Security: Issues for the 21st Century, Naval Postgraduate School, Monterey, California, February 1988.
6. Quester, A.O. and Cooke, T.W. First Term Attrition at Surflant and Surfpac: FY 1985 through FY 1988, Center for Naval Analyses, Alexandria, Virginia, July 1989.
7. Quester, A.O. and Cooke, T.W. Who Stays and Who Leaves? Identifying Successful Navy Recruits, Center for Naval Analyses, Alexandria, Virginia, June 1988.
8. Buddin, R. Analysis of Early Military Attrition Behavior, Rand Corporation, Santa Monica, California, July 1984.
9. Smith, J.V. and Kendall, W.A. Personal, Situational, and Organizational Determinants of Navy Enlisted Attrition, Master's Thesis, Naval Postgraduate School, Monterey, California, June 1980.
10. Lau, A.W. Personal and Organizational Determinants of Enlisted Attrition, Navy Personnel Research and Development Center, San Diego, California, March 1979.
11. Carlson, C.G. A Descriptive Analysis of First Term Attrition From U. S. Naval Ships, Master's Thesis, Naval Postgraduate School, Monterey, California, September 1981.

12. Projected Operational Environment (POE) and Required Operational Capabilities (OPNAVINST 3501 series), Chief of Naval Operations, Washington, D.C.
13. Quester, A.O. and Cooke, T.W. Navy First-Term Attrition, Center for Naval Analyses, Alexandria, Virginia, June 1989.

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